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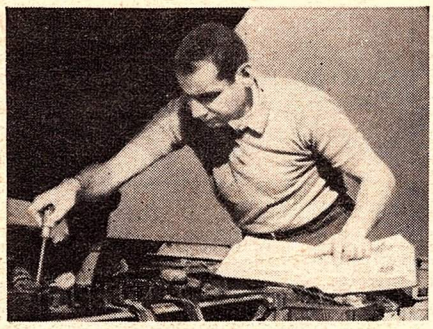

Whether your baby is a 'Vette or a VW, you can have her humming like a little atom-smasher, every part doing its job with laser-beam cleanness. Just grab onto the giant 1972 MOTOR's Auto Repair Manual.

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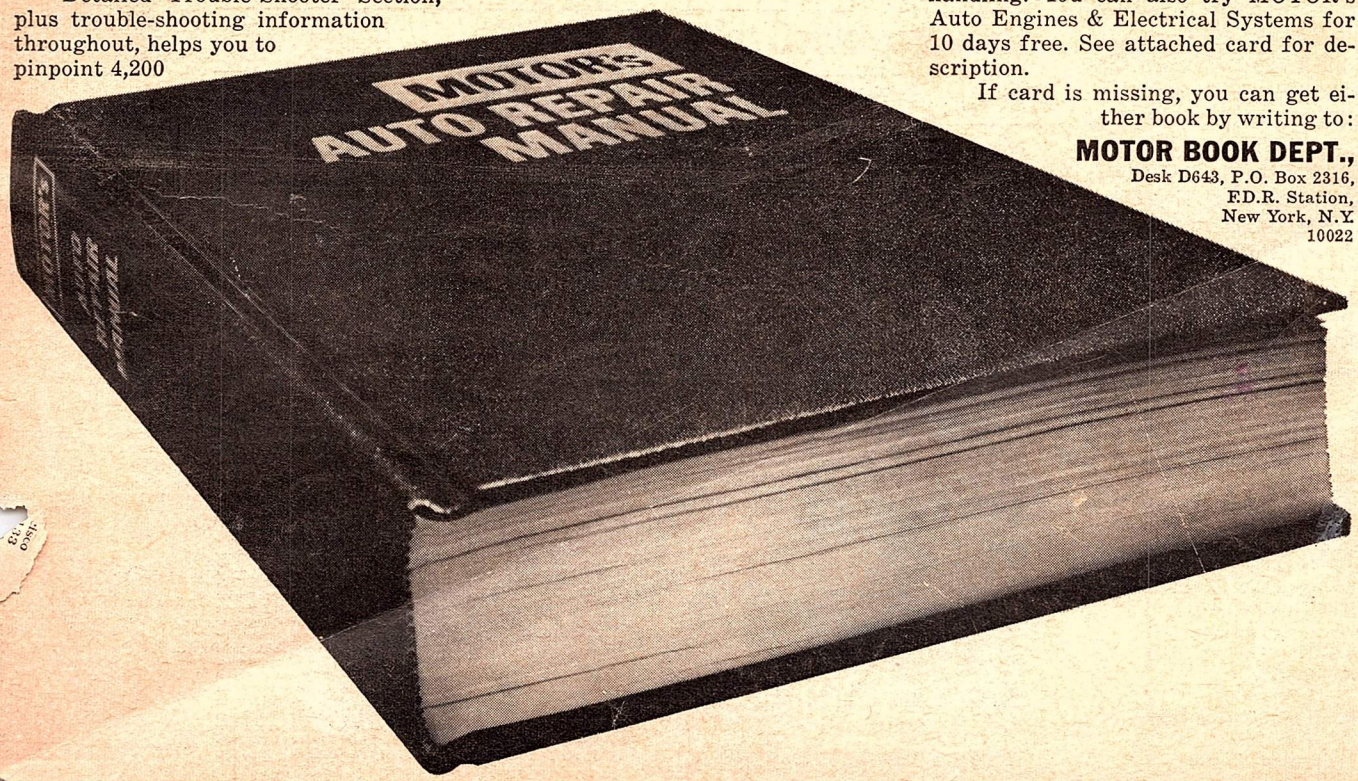
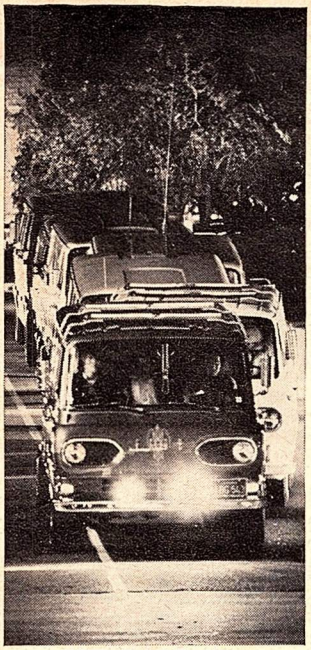




SEE PAGE 88

features

technical

cars

racing action

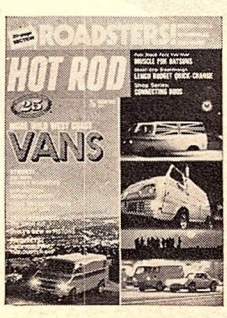
motorcycles

departments

HOT ROD

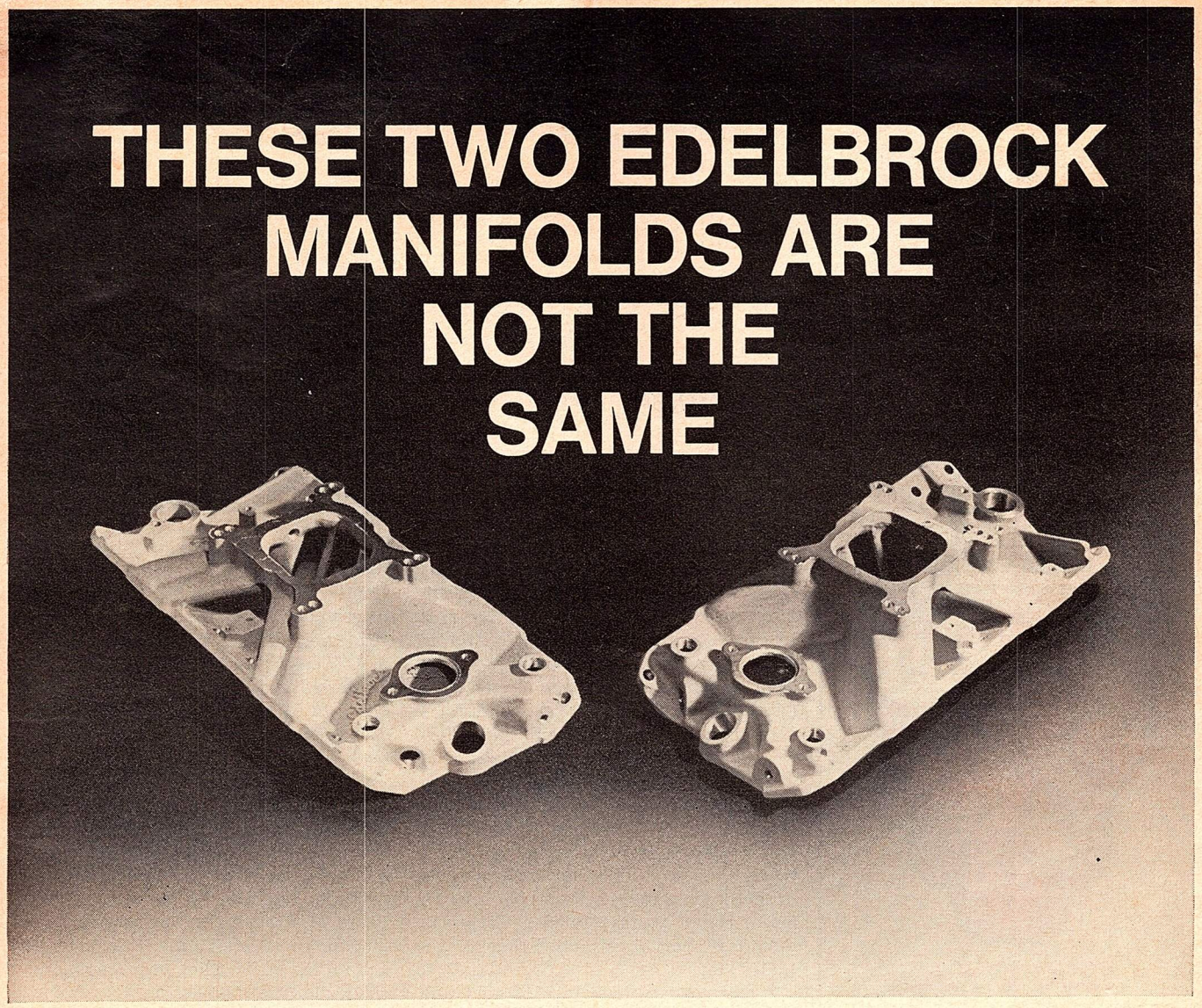
Everybody's Automotive Magazine

March 1972, Vol. 25, No. 3
Published Monthly



COVER: Steve Green captured the habitat and life style of Vannus Californius in all its colorful moods with Auto-Nikkor-Equipped Nikon F and High Speed Ektachrome. There's more, beginning on page 88.

THESE TWO EDELBROCK MANIFOLDS ARE NOT THE SAME

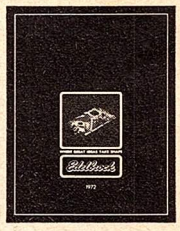


...ONE IS THE NEW "TORKER"

Don't let looks deceive you, one of these two manifolds is different from the TM-1 Tarantula. It is one that will be used on the engines of performance enthusiasts who do not frequent the drag strips but enjoy crisp engine response without a sacrifice of emission levels or fuel economy. It will also find a home in recreational vehicles and cars that tow trailers. It even applies to the use of stock carburetion where only a manifold purchase has been made.

It *looks* like the Tarantula only because it is in the Tarantula family. Beyond this, the similarity is subtle because we concentrated on interior changes to (1) sharpen throttle response and seat-of-the-pants snap, (2) further improve the fundamental emission reduction characteristics of the Tarantula, (3) build overall gains in fuel economy, and (4) show substantial torque improvements. In fact, this is where the "Torker" is really potent. For example, 0-60 acceleration on a 350 Chevy Camaro was improved by more than ½-second. For the street-driven vehicle, the "Torker" is plenty stout through the 1500-6000 rpm range.

Our overall objective was to introduce a manifold showing significant gains in torque/acceleration capability without disruption of a sound emission manifold design. Now that we've done this, you'll be hearing a lot about the "Torker" during 1972. Its name alone tells you what to expect when you mash the throttle on this newest member of the Edelbrock family of Tarantulas.



(In case you're still wondering, the manifold on the left is the "Torker.")

"Torker" catalog #2725 now available for small block Chev. only.

Write for new 1972 catalog, $1.00 ppd. . . . and the all new "Tarantula" decal and "Torker" spec sheet, 10¢.

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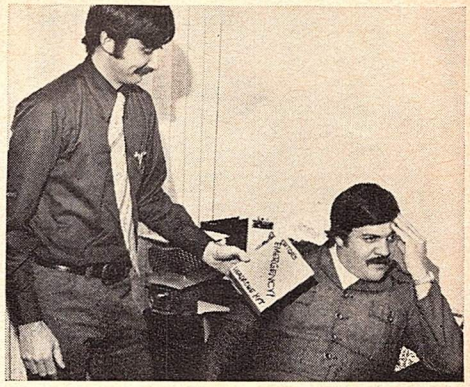
EDITORIALLY SPEAKING

"Who is Terry Cook and why is he doing those incredible things?"



Isolated as I was from the real world late in 1963 when I began advanced Navy flight training at Corpus Christi, I devoured literally anything that had to do with my favorite sport. And in those days, the latest, hottest word on drag racing was in *Drag News*. One day, as I was savoring the latest issue, I came across a new column, "New Jersey News," written by someone named Terry Cook. Because it was witty and entertaining and informative, and because a few years earlier I had been a strip reporter for the same paper, I wrote to Terry and told him to hang in there. He wrote back and we began a loose, comic correspondence. It was a little less than a year later that we actually met.

I had earned my wings of gold and was attending the last of a series of specialized schools before reporting to the squadron, and "Broomfoot," (a name bestowed on Terry following a less-than-full-throttle pass in a strong blown roadster) had achieved a sort of national prominence through his often provocative columns. It was the first "Sneaky Pete" Meet, at Atlanta, and he was covering it. I drove my '57 Chevy the 250 miles from the Charleston, South Carolina, levee, and hunted him down.

A few months later, while I was enjoying winter in Iceland, I got a letter from Broomy telling me that he had left Murray Hill for the West Coast and would be helping to start a new drag racing weekly. He wanted to know if I'd be interested in writing a column for it. I was. The paper was *Drag World* (which eventually became the AHRA house organ), and I wrote a humor/commentary series for it for about a year and a half, but had to stop when marriage and increased flying duties left me no time for it. *Drag World* changed hands and was moved to Kansas City, and Terry went to work at *Car Craft*.

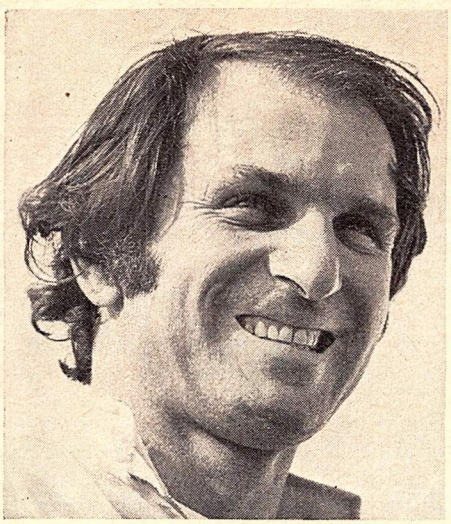
"Hey, look," read the letter, attached to a CARE package of *Car Craft* magazines Terry sent to me on deployment in Sicily. "This isn't the put-a-Pontiac-grille-in-your-'54-Chevy mag it used to be. It's about drag racing." So I read them; he was right.

At Terry's suggestion, my wife and I came to L.A. after my release from the Navy to take a look at *Car Craft* (and vice versa) before rashly taking a high-buck job as an airline pilot.

"T.C." showed me around the magazine, introduced me to the staff and took me on a couple of assignments. They were looking for a tech editor. I had a degree in mechanical engineering, writing experience, nearly a dozen years of drag racing involvement and 2000 hours of pilot time. I decided that I'd rather write than be a commercial pilot, did a few stories on approval and got the job. After 22 really enjoyable months at *Car Craft* and then an extremely educational 20 months as Senior Editor of *Motor Trend*, I accepted the post as Editor of *Hot Rod*. In the meantime, Terry had become Editor of *Car Craft* and had guided that publication to tremendous popularity and prestige and helped make it one of the most creative magazines on the stands, dealing not only with drag racing, but the contemporary street scene.

Now, I have been asked if I would return to *Motor Trend*, and have decided I would. My enthusiasm for hot rodding is still as great as ever, but I'm also interested in all the other aspects of the automobile and what the future holds. As you may have guessed, Terry Cook will take over here. The magazine will retain its basic story mix and range of coverage, but you'll note a freer, more graphically striking approach, a direction we were already moving in. Terry is a dynamo, capable of generating great story leads and graphic treatments. Combine this with a real feel for what's relevant, and the magazine can only get better.

— A. B. SHUMAN



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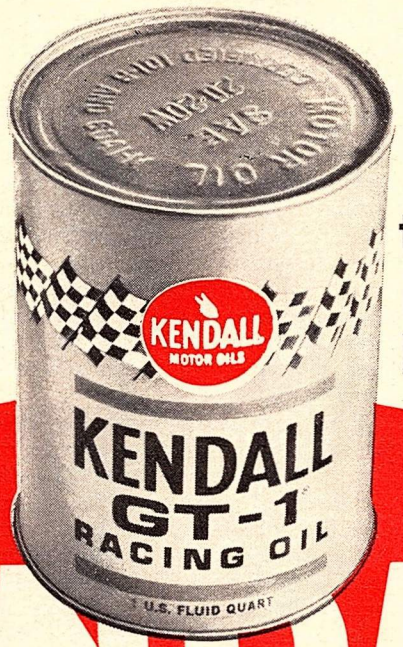

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Strictly Street

This sport has its dreamers. I'm one of them. Include yourself, friend; seems it's an unescapable fact of life for all hot rodders. Most of us would be destitute, defunct auto-hobbyists were we not able to engage occasionally in imaginative car building. Even though shrinks would be apt to label our whimsical ideology as pure fantasy fare, I view it, nonetheless, as a healthy pastime function and one that saves dollars as well as marriages.

Many a hot rod bank account has suffered from the overfunding of devil-may-care second, third and fourth car building activities. I find it necessary to maintain some reserves for roadster upkeep improvement spending and, by doing so, continually find it difficult to get serious about other cars, much less the scrounging of parts.

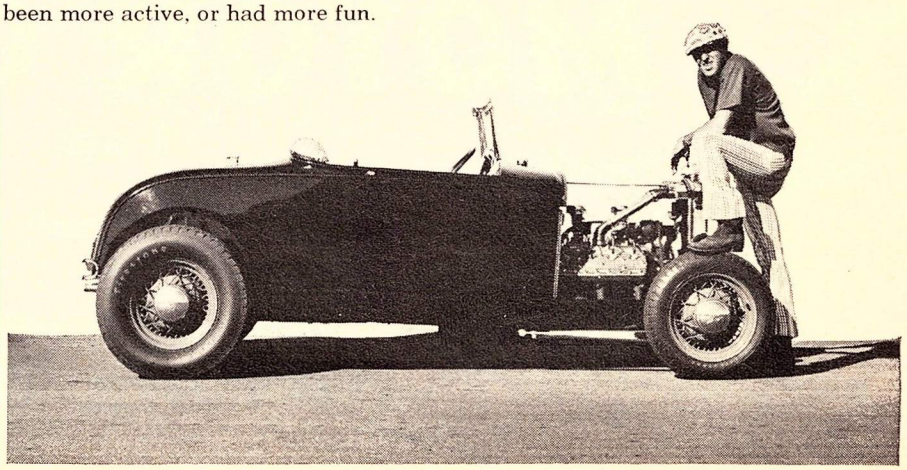
So . . . hammered and fenderless three-windows, ARDUN-moved '40 Standard coupes, Bill Ladefoged-type non-Ford sedans, *ad infinitum* are (unfortunately) for the present achieved only on an imaginary basis. But, I don't have to pursue vast financial means for fulfilling these purely mental designs. And dreaming enables my best-loved to stay in perfect readiness and remain her old unchanged, dependable and sorely traditional self.

Long rows of four-wheeled delectables litter my visionary stable rather than my garage floor. And I'll betcha a Bell axle to a five-spot that my make-believe shop — compared to yours — has turned out more sodiumliners, rid more roadsters of fenders, and in more serious but still hypothetical cases, met the challenge of putting the *save* to great numbers of Zephyr Convert Sedans, DeSoto Airflows and Packard V12 Sport Phaetons. Even the wealthiest of real, live, old-iron practitioners — whose puritanical motives, by the way, I greatly respect — couldn't have been more active, or had more fun.

Ah, yes, to give the highboy a stablemate of those proportions, its restored, brilliant factory perfectness all but upstaging the open-wheeled scamp parked alongside. Or maybe (my dreamy hot rod ideology retorts) I should have a like-original piece along the lines of a '36 Packard Club Sedan, bristling with the paraphernalia now glamorized by so many of my closed-car cohorts, to include the following: Comfort group — air conditioning, heater, full sound. Ride/handling — power steering, power disc brakes, beefed stock suspension (making modifications which would make the vehicle ultimately more roadable for extended, fast cross-country motoring, replacing only if necessary original suspension and running gear). Drive train — must be strong, heavy-duty unit from late big car (Lincoln, Cadillac, Chrysler) or the best of two other possibles: utilization of original components (drive shaft, rear end, etc.) or mating of a straight-eight Packard ('54) driveline and engine package to the chassis to minimize modifications. Engine — any big displacement unit (the Packard in-line eight my first choice for obvious reasons — muffled to a whisper). Appearance package — for the most part unaltered from stock, retaining those things which gave these cars their appeal and distinction (wire wheels, wide whites, two-tone fender and body paint schemes, driving lights).

I predict this will be our next step away from Ford-dominated street rodding: the coming of the heavyweights! Such practices admittedly don't set well with restorers, but once you've realized the potential of such a machine, it's

(Continued on page 10)



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11502-2	Ford	11508-9	Cobra
11514-7	Pinto	11509-7	Mustang
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11522-0	Race Car in tow	11532-9	427 Cu. In.
		11533-7	390 Cu. In.
11523-8	350 Cu. In.	11534-5	327 Cu. In.
11524-6	307 Cu. In.	11535-2	396 Cu. In.
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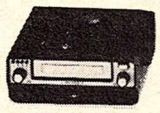

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The Racing World's Supermarket

Strictly Street

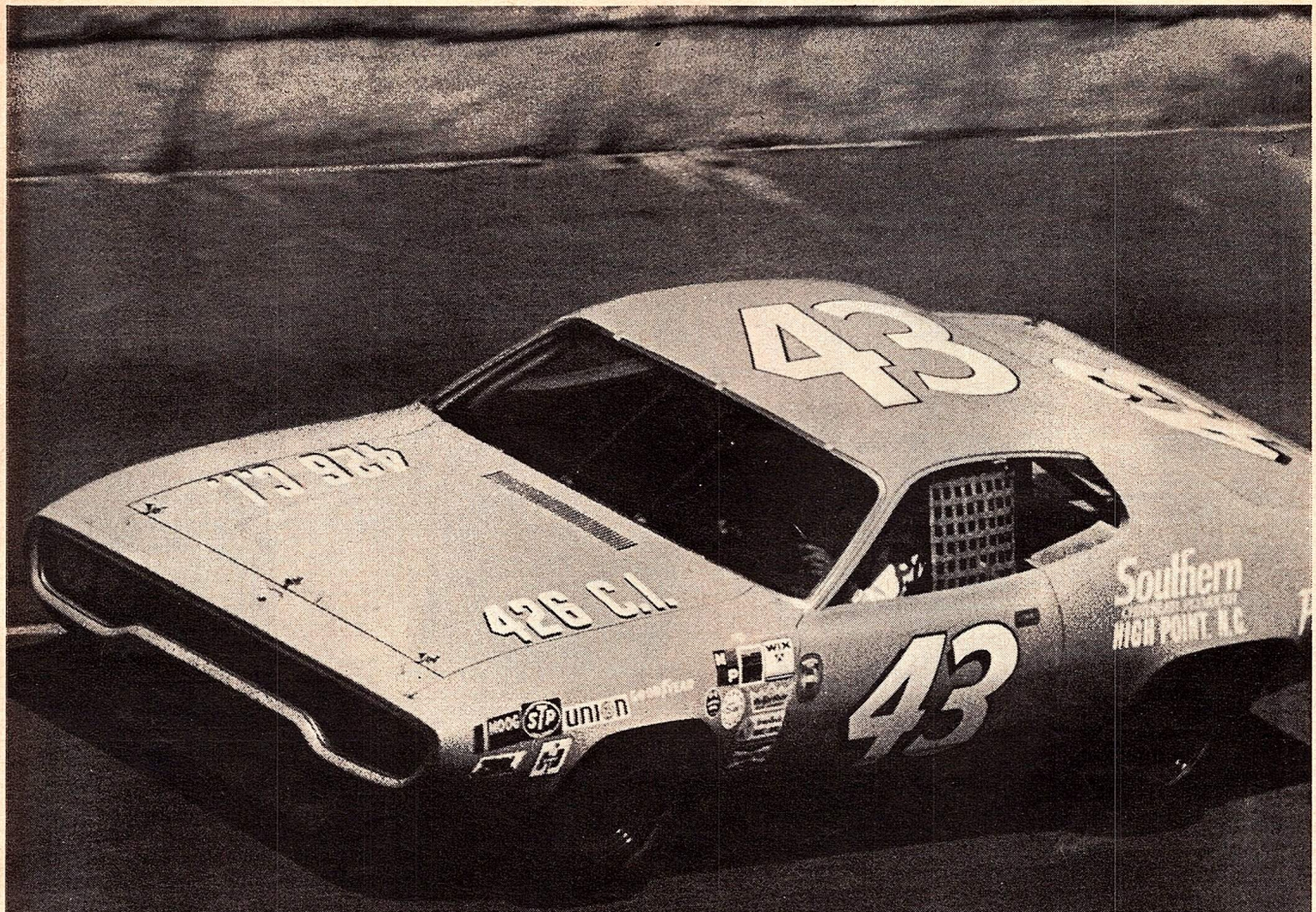
hard to keep from following suit. Street Rod Nats attendees received a special treat and a hint of things to come when two outstanding examples of early big-car hot rods made their appearances in Memphistown. Both California-based, Jim Morris of Torrance trundled through the Streetkhana at the helm of his inspiring '25 Buick Town Car — replete with same-make go-power and a full climate-controlled aft cabin; then along came Riverside's Dick McPeak in his splendidly prepared '32 Imperial dual side-mount, split-glass *bank-job* job that's got to be seen to be believed. Late MoPar V8 muscle surely makes it one helluva getaway number that's a tough act to follow — especially if your act remains imaginary.

But isn't that the way all worthwhile projects get under way? The Street Roadster project we've introduced to you this time 'round . . . its derivation stems from nothing more than *what-if* palaver exchanged between A.B. Shuman and me. The very vehicle by which this magazine will continue its sense of involvement with its readers and the grass-roots direction it thrives on, upon completion, will be given a permanent home outside these hallowed halls. The flabbergasted recipient, whoever he or she might be — to be determined late in the year by way of a special contest involving our readership — will surely be convinced that someone has tripped out when the keys to HRM's Mazda-motored masterpiece dangle before a pair of astonished eyes.

Publisher Day decreed the building of a Project Car, the concept for which, I'm proud to say, was my contribution. Acknowledging the '32 highboy as the criterion for true hot rodding, we proceeded on that basis and came up with these directives for this ambitious undertaking: To be an (almost) fenderless fiberglass Deuce roadster with peek-a-boo "splash minimizers" fore and aft, styling shall be traditional up to a point; then modern appointments (which are fast becoming the "required" norm) will be incorporated to make the machine lawful in every respect. Discs all-round, energy-absorbing nerf bars, side lights and flashers, collapsible steering column, the full gambit. We challenged ourselves to building an all-legal, still legit Hot Rod Roadster to prove that it is possible, even when *all* regulations regarding equipment — including those on emissions — are complied with. And don't think for a minute we've overlooked handling . . . Will wonders never cease; the *quarter* has finally got a curve in it. Streetkhana, here we come!

See what dreamin' get you!

— BUD BRYAN



Richard the first.

Richard Petty is one of the rare breed of men who become legends in their own time.

Richard is the first stock car driver to win over one million dollars in prize money. He is the first and only man to win the prestigious Daytona 500 more than once. (Last year was his third Daytona victory.) And Plymouth-driving Richard topped his record-setting '71 season by capturing his third NASCAR Grand National Championship.

Richard says experience is one key to his racing success. And Richard's had a lot of experience with Champion spark plugs.

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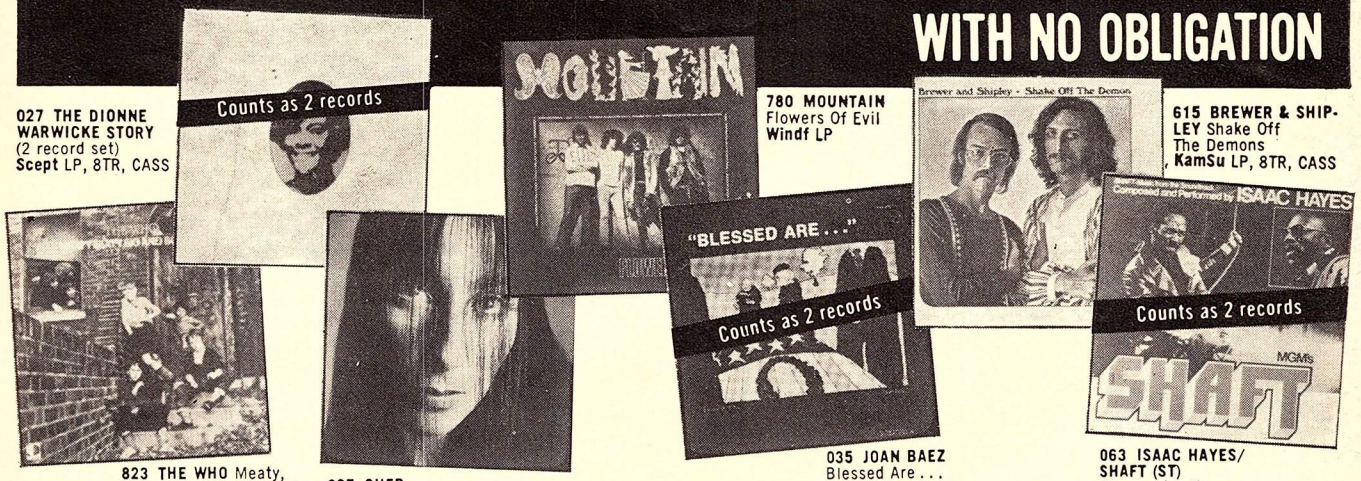


027 THE DIONNE WARWICKE STORY (2 record set) **Scept** LP, 8TR, CASS

780 MOUNTAIN Flowers Of Evil **Windf** LP

615 BREWER & SHIPLEY Shake Off The Demons **KamSu** LP, 8TR, CASS

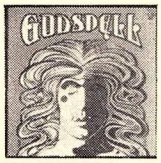
823 THE WHO Meaty, Beaty, Big & Bouncy **Decca** LP, 8TR, CASS

827 CHER **Kapp** LP, 8TR, CASS

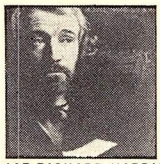
035 JOAN BAEZ Blessed Are . . . (2 record set) **Vangu** LP, 8TR, CASS

063 ISAAC HAYES/ SHAFT (ST) (2 record set) **Enter** LP, 8TR, CASS

909 LOU RAWLS Natural Man **MGM** LP, 8TR, CASS

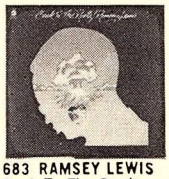


777 GODSPELL Original Cast **Bell** LP, 8TR, CASS



135 RICHARD HARRIS My Boy **Dunhi** LP, 8TR, CASS

043 FIDDLER ON THE ROOF Original ST (2 record set) **UniAr** LP, 8TR, CASS



683 RAMSEY LEWIS Back To The Roots **Cadet** LP, 8TR, CASS

313 JOAN BAEZ/ CARRY IT ON (ST) **Vangu** LP, 8TR, CASS

600 OCEAN Put Your Hand In The Hand **KamSu** LP, 8TR, CASS

420 IKE & TINA TURNER 'Nuff Said **UniAr** LP, 8TR, CASS

270 DIONNE WARWICKE Greatest Movie Hits **Scept** LP, 8TR, CASS

705 CHOPIN Polonaises **Yorks** LP, 8TR, CASS

684 LONDON HOWLIN' WOLF SESSIONS **Chess** LP, 8TR, CASS

373 QUINTESSENTIAL EARL HINES **Chiar** LP, 8TR, CASS

712 LOS INDIOS TABA-JARAS **Yorks** LP, 8TR, CASS

707 RCOA STEREO SYSTEMS TEST RECORD **Yorks** LP

267 DIONNE WARWICKE I'll Never Fall In Love Again **Scept** LP, 8TR, CASS

355 THE 101 STRINGS Beatles' Million Seller Hits **Alshi** LP

275 CANNED HEAT Live At Topanga Corral **Wand** LP, 8TR, CASS

708 HANDEL Water Music **Yorks** LP, 8TR, CASS

773 LAWRENCE OF ARABIA Original Soundtrack **Bell** LP, 8TR, CASS

383 RUTH BATCHELOR Songs For Women's Liberation **Femme** LP

763 5TH DIMENSION Love's Lines, Angles & Rhymes **Bell** LP, 8TR, CASS

353 THE 101 STRINGS Love Story **Alshi** LP

760 PARTRIDGE FAMILY Up To Date **Bell** LP, 8TR, CASS

100 THREE DOG NIGHT Golden Bisquits **Dunhi** LP, 8TR, CASS

778 STAMPEDERS Sweet City Woman **Bell** LP, 8TR, CASS

704 BEETHOVEN Piano Sonatas **Yorks** LP, 8TR, CASS

779 DAWN **Bell** LP, 8TR, CASS

903 THE DONNY OSMOND ALBUM **MGM** LP, 8TR, CASS

See for yourself why over 1¾ million record and tape collectors paid $5 to join Record Club of America when other record or tape clubs would have accepted them free.

	Capitol Stereo Tape Club (as adv. in Esquire Aug. 1971)	Columbia Tape Club (as adv. in TV Guide Aug. 7, 1971)	Capitol Record Club (as adv. in Playboy Oct. 1971)	Columbia Record Club (as adv. in Redbook Aug. 1971)	Citadel Record Club As Adv. in Redbook Nov. '71	RECORD CLUB OF AMERICA
CAN YOU CHOOSE FROM ALL LABELS? LP's OR TAPES, INCLUDING CARTRIDGE AND CASSETTE TAPES?	NO	NO	NO	NO	NO	**YES!** Choose any LP or tape on any label! No exceptions! Over 300 different manufacturers including Capitol, Columbia, RCA, Angel, London, etc.
MUST YOU BUY A "MINIMUM" NUMBER OF RECORDS OR TAPES? HOW MANY?	12	6	12	10	12	**NONE!** No obligations! No yearly quota! Take as many, as few, or nothing at all if you so decide!
HOW MUCH MUST YOU SPEND TO FULFILL YOUR LEGAL OBLIGATION?	$83.76 to $95.76	$41.88 to $47.88	$59.76 to $83.76	$49.80 to $59.80	$46.68 to $64.68	**ZERO DOLLARS** You don't have to spend a penny—because you're not "legally obligated" to buy even a single record or tape!
CAN YOU BUY ANY RECORD OR TAPE YOU WANT AT A DISCOUNT?	NO	NO	NO	NO	NO	**ALWAYS!** Your discount up to 79% OFF. Guaranteed never less than a third! No exceptions!
DO YOU EVER RECEIVE UNORDERED RECORDS OR TAPES?	YES	YES	YES	YES	YES	**NEVER!** There are no cards which you must return. Only the records and tapes you want are sent—and only when you ask us to send them.
HOW LONG MUST YOU WAIT FOR SELECTIONS TO ARRIVE?	5 to 6 weeks	5 to 6 weeks	5 to 6 weeks	5 to 6 weeks	5 to 6 weeks	**NO LONG WAITS!** Your order processed same day received. No shipping on cycle.

TYPICAL "EXTRA DISCOUNT" SALE

$4.98 LPs average as low as $1.69
$5.98 LPs average as low as $2.04

Savings of 66⅔% or more from recent Club sales up to $3.94 per LP. Start these giant savings now...not after you fulfill your obligation like the other clubs.

	Label	List Price	Average Club Price
BLACK SABBATH—Master of Reality	WarBr	5.98	**2.04**
ANDY WILLIAMS—You've Got A Friend	Colum	5.98	**2.04**
BURT BACHARACH	A&M	5.98	**2.04**
JEFFERSON AIRPLANE—Bark	Grunt	5.98	**2.04**
BARBRA JOAN STREISAND	Colum	5.98	**2.04**
MOODY BLUES—Every Good Boy Deserves Favour	Thres	5.98	**2.04**
THE DOORS—L.A. Woman	Elekt	5.98	**2.04**
KRIS KRISTOFFERSON—Silver Tongued Devil & I	Monum	4.98	**1.69**
PAUL McCARTNEY—Ram	Apple	5.98	**2.04**
CAROLE KING—Tapestry	Ode	5.98	**2.04**
JOHN DENVER—Poems, Prayers & Promises	RCA	5.98	**2.04**

RECORD CLUB OF AMERICA—The World's Largest Record and Tape Club

Any 1 Tape Cartridge or Cassette Shown Here Worth up to $20.94

TO BUY ANYTHING EVER!

Yes, take your pick of these great hits right now! Choose any 3 Stereo LPs (worth up to $20.94) or any 1 Stereo Tape (cartridge or cassette, worth up to $13.96) FREE... as your welcome gift from Record Club of America when you join at the low lifetime membership fee of $5.00. You can defer your selection of FREE items and choose from an expanded list later if you can't find 3 LPs or 1 Tape here. We make this amazing offer to introduce you to the only record and tape club offering guaranteed discounts of 33⅓% to 79% on all labels—with no obligation or commitment to buy anything ever. As a member of this one-of-a-kind club you will be able to order any record or tape commercially available, on every label—including all musical preferences. No automatic shipments, no cards to return. We ship only what you order. Moneyback guarantee if not satisfied.

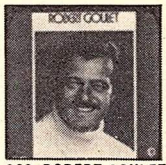
205 ROD STEWART
Every Picture Tells A Story
Mercu LP, 8TR, CASS

277 B. J. THOMAS
Greatest Hits Vol. 2
Scept LP, 8TR, CASS

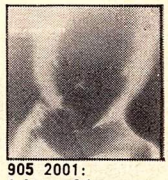
774 5TH DIMENSION
Reflections
Bell LP, 8TR, CASS

060 JESUS CHRIST SUPERSTAR
(2 record set)
Decca LP, 8TR, CASS

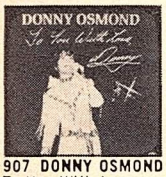
123 STEPPENWOLF
For Ladies Only
Dunhi LP, 8TR, CASS



906 ROBERT GOULET
I Never Did As I Was Told
MGM LP, 8TR, CASS



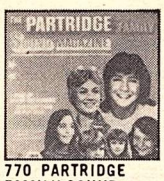
905 2001:
A Space Odyssey
MGM LP, 8TR, CASS



907 DONNY OSMOND
To You With Love
Donny
MGM LP, 8TR, CASS

900 OSMONDS
Homemade
MGM LP, 8TR, CASS

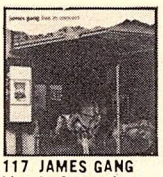
308 JOAN BAEZ
Joan Baez 5
Vangu LP, 8TR, CASS



770 PARTRIDGE FAMILY SOUND MAGAZINE
Bell LP, 8TR, CASS

764 MOUNTAIN
Nantucket Sleighride
Windf LP

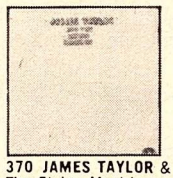
380 ABBIE HOFFMAN
Wake Up America!
BigTo LP, 8TR, CASS



117 JAMES GANG
Live In Concert
ABC LP, 8TR, CASS

354 THE 101 STRINGS
Webb & Bacharachs' Million Seller Hits
Alshi LP

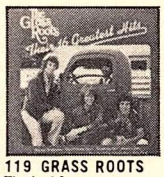
700 TCHAIKOVSKY
1812 Overture
Yorks LP, 8TR, CASS



370 JAMES TAYLOR &
The Flying Machine
Eupho LP

908 ERIC BURDON & JIMMY WITHERSPOON
Guilty
MGM LP, 8TR, CASS

263 B. J. THOMAS
Greatest Hits Vol. 1
Scept LP, 8TR, CASS



119 GRASS ROOTS
Their 16 Greatest Hits
Dunhi LP, 8TR, CASS

264 GUESS WHO
Born In Canada
Wand LP, 8TR, CASS

118 THREE DOG NIGHT
Harmony
Dunhi LP, 8TR, CASS

NOW YOU CAN CHARGE IT, TOO!

AT LAST A RECORD AND TAPE CLUB WITH NO "OBLIGATIONS"—ONLY BENEFITS!

Ordinary record and tape clubs make you choose from a few labels—usually their own! They make you buy up to 12 records or tapes a year—usually at list price—to fulfill your obligation. And if you forget to return their monthly card—they send you an item you don't want and a bill for $4.98, $5.98, $6.98, or $7.98! In effect, you may be charged almost double for your records and tapes.

BUT RECORD CLUB OF AMERICA ENDS ALL THAT!

We're the largest **all-label** record and tape club in the world. Choose any LP or tape (cartridges and cassettes), including new releases. No exceptions! Take as many, or as few, or no selections at all if you so decide. Discounts are GUARANTEED AS HIGH AS 79% OFF! You always save at least 33⅓%. You get best sellers for as low as 99¢.

NO AUTOMATIC SHIPMENTS

With our Club there are no cards which you must return to prevent shipment of unwanted LPs or tapes (which you would have to return at your own expense if you have failed to send written notice not to ship). The postage alone for returning these cards each month to the other clubs costs almost an additional $2.40. **We send only what you order.**

HOW CAN WE BREAK ALL RECORD AND TAPE CLUB RULES?

We are the only major record and tape club NOT OWNED... NOT CONTROLLED... NOT SUBSIDIZED by any record or tape manufacturer anywhere. Therefore, we are not obligated by company policy to push any one label. Nor are we prevented by distribution commitments from offering the very newest LPs and tapes.

SPECIAL INTRODUCTORY MEMBERSHIP OFFER

Join RECORD CLUB OF AMERICA now and take advantage of this special **Introductory Membership Offer.** Choose any 3 LPs or any 1 tape shown here (worth up to $20.94) and mail coupon with check or money order for $5.00 membership fee (a small handling and mailing fee for your free LPs or tapes will be sent later). **If you can't find 3 LPs or 1 tape here, you can defer your selection and choose from expanded list later.** This entitles you to LIFETIME MEMBERSHIP—and you never pay another club fee. Your savings have already more than made up for the nominal membership fee.

NOW YOU CAN CHARGE IT

If you prefer, you may charge your membership to one of your credit cards. We honor four different plans. Check your preference and fill-in your account number on the coupon.

LOOK WHAT YOU GET

- **FREE Lifetime Membership Card**—guarantees you brand new LPs and tapes at discounts up to 79%... Never less than ⅓ off.
- **FREE Giant Master LP and Tape Catalog**—lists thousands of all readily available LPs and tapes (cartridges and cassettes) of **all labels** (including foreign)... **all musical categories.**
- **FREE Disc and Tape Guide**—The Club's own Magazine, and special Club sale announcements which regularly bring you news of just-issued new releases and "extra discount" specials.
- **FREE ANY 3 Stereo LPs or any 1 Tape** shown here (worth up to $20.94) with absolutely no obligation to buy anything ever!

GUARANTEED INSTANT SERVICE

All LPs and tapes ordered by members are shipped same day received (orders from the Master Catalog may take a few days longer). ALL RECORDS AND TAPES GUARANTEED—factory new and completely satisfactory or replacements will be made without question.

MONEY BACK GUARANTEE

If you aren't absolutely delighted with our discounts (up to 79%)—return items within 10 days and membership fee will be returned AT ONCE! Join over two million budget-wise record and tape collectors now.

RECORD CLUB OF AMERICA
CLUB HEADQUARTERS
YORK, PENNSYLVANIA 17405 **V021D**

Yes—Rush me a lifetime Membership Card, Free Giant Master LP & Tape Catalog, and Disc & Tape Guide at this Special Membership Offer. Also send me the 3 FREE LPs or 1 FREE tape which I have indicated below (with a bill for a small mailing and handling charge). I enclose my $5.00 lifetime membership fee. This entitles me to buy any LPs or tapes at discounts up to 79%, plus a small mailing and handling charge. I am not obligated to buy any records or tapes—no yearly quota. If not completely delighted I may return items above within 10 days for immediate refund of membership fee.

3 FREE LPs

or **1 FREE TAPE**

☐ 8 track
☐ cassette

or ☐ **Defer Selection**—send expanded list.

Mr.
Mrs.
Miss _____

Address _____

City _____ State _____ Zip _____

All Servicemen write Soc. Sec. # _____

CHARGE IT to my credit card. I am charging my $5.00 membership (mailing and handling fee for each FREE LP and tape selected will be added).

Check one: ☐ **Diners Club** ☐ **Master Charge** ☐ **American Express** ☐ **BankAmericard**

Acct. # _____ Expiration Date _____

Signature _____

CANADIANS mail coupon to above address. Orders will be serviced in Canada by Record Club of Canada. Prices vary slightly.

RECORD CLUB OF AMERICA—The World's Lowest Priced Record and Tape Club

TWENTY-FIVE YEARS 25 OF LEADERSHIP

HRM's gonna have a celebration . . . and you're invited to participate

HOT ROD MAGAZINE'S 25th ANNIVERSARY

Everyone celebrates anniversaries of one sort or another. But after a few come and go, you usually don't pay much attention to them. Some you may forget entirely. However, those which are true milestones demand special recognition. The Silver Anniversary, which marks the passage of 25 years, is one of these. That's a quarter of a century! If you have been paying attention to "Hot Rod" Magazine's contents page, you have no doubt noticed that we are into Volume 25, and you're probably thinking that we let our Silver Anniversary slip by us. Not so. Unlike people, who celebrate the first anniversary one year after they're born, married, etc., magazines begin life with Volume One. So Volume 26, No. 1, will mark the beginning of our 25th year (January 1973). We at "Hot Rod" are extremely proud and excited about our 25 years of leadership in the automotive publishing field. And far from letting our 25th slip by, we are letting you know about it well in advance because we're making a lot of special plans for our anniversary issue.

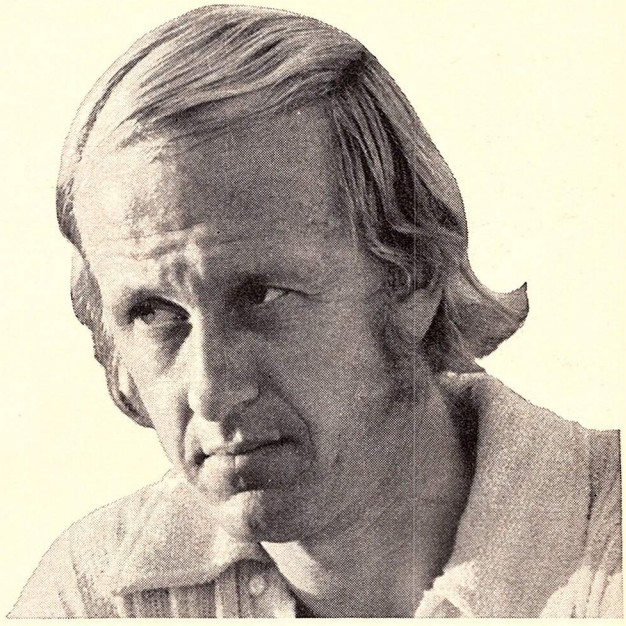
We'll keep you up to date as the months roll by and our plans become finalized. We can't give you all the details right now, but we can give you a few hints. There are going to be incredible giveaway contests with prizes that will top anything ever done by any automotive magazine. They won't cost you a dime, and you'll have just as good a chance at winning as the next guy. The January issue itself will be a gigantic special issue that will take a look into the past, where it's at in the present, and what will be happening in the future.

For many, it will be a nostalgic look at the past which will rekindle fond memories. For countless others, it will be a look at a facet of their sport that they didn't know existed. For all, it will be an expert's view of the future direction of things automotive and what's in it for us.

Remember, this is just a hint of what we have in store for you when "Hot Rod" Magazine celebrates its Silver Anniversary and pays tribute to those who made it all possible . . . our readers. As the pitchman says, "Stick around, you ain't seen nothing yet! ■■

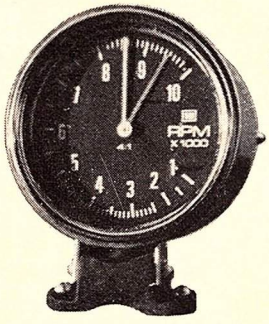
What makes Ronnie run?

His car is fast. His Barracuda, "The Boss," is what's been called "probably the fastest car in Pro Stock."

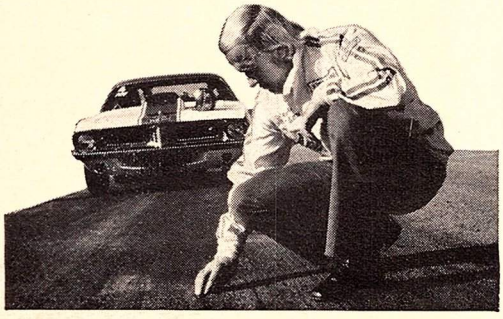


He concentrates. Before every important run, Ronnie gets off by himself to think through every detail of the race he is about to run.

He's part of a great team. With manager Buddy Martin and chief mechanic Jake King.



His starts are precise. Ronnie rarely red lights. When he drops it in, from a wide open 8,500 rpm's, chances are it's to win. He shifts like lightning. By feel, by engine sound, and by tach.



He knows road surfaces. He has a sixth sense about strip conditions—when to use resin, when not to.

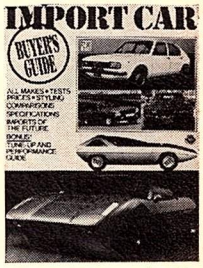
He runs on a great oil. Valvoline.® The motor oil that helps make Ronnie run—and win. Sox & Martin have used Valvoline ever since they started in 1962. They're not alone. More drag race drivers rely on Valvoline Motor Oil than any other brand. You can rely on Valvoline for your car, too.

Valvoline
For the man who really cares about his car.

Ashland® VALVOLINE OIL COMPANY, Ashland, Ky.
Division of Ashland Oil, Inc.

Import Car Buyer's Guide

Start the year right with the most complete imported car guide you'll find in 1972



The import car market is where the action is. The 10-percent tax surcharge is off, the American dollar has been devalued, the price freeze on U.S. cars is off . . . whatever the results of all the economic maneuvering may be, the imports are here in force for "1972 Import Car Buyer's Guide."

From Karl Ludvigsen's opening analysis of the import car scene, through surveys of the latest from Europe and Japan, to individual line-ups from each manufacturer, it's all here for you in word and picture . . . photos of all the new imports, specifications, rotary engines, front-wheel drive, mid-engines, safety features, V12s.

How do you get the most performance out of the imports? All kinds of performance and appearance equipment is available, and this guide tells you what's available for each car and where to get it. In addition, there is a supertune section that really tells you how to pep up your import.

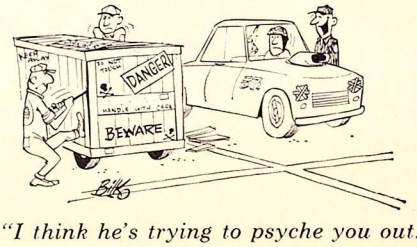
Whatever your interest in imported cars, be it casual or cash, you'll find everything your interest desires in the 192-page "1972 Import Car Buyer's Guide," on sale at your newsstand or direct from Petersen Publishing Co., 5900 Hollywood Blvd., Los Angeles, Calif. 90028. Just $2.00 (plus 25¢ for postage and handling, if you order by mail). ■ ■

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION
(Act of August 12, 1970: Section 3685, Title 39, United States Code)

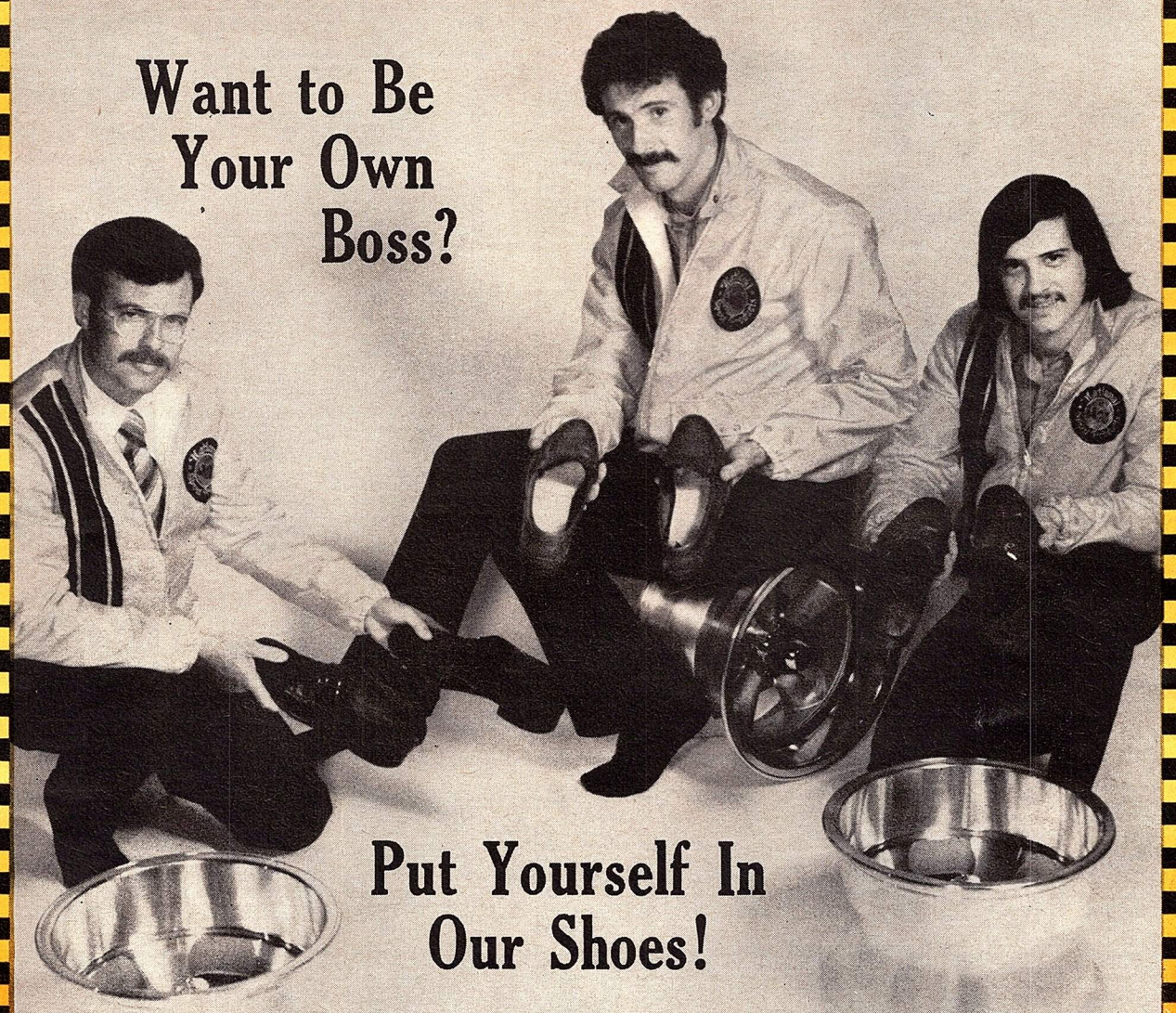
1. Title of publication: HOT ROD MAGAZINE combined with ROD & CUSTOM
2. Date of filing: September 20, 1971
3. Frequency of issue: Monthly
4. Location of known office of publication: 8490 Sunset Boulevard, Los Angeles, California 90069
5. Location of the headquarters or general business offices of the publishers: 8490 Sunset Boulevard, Los Angeles, California 90069
6. Names and addresses of:
Publisher: Dick Day, 8490 Sunset Boulevard, Los Angeles, California 90069. Editor: A. B. Shuman, 8490 Sunset Boulevard, Los Angeles, California 90069. Managing Editor: Don Evans, 8490 Sunset Boulevard, Los Angeles, California 90069
7. Owner: Petersen Publishing Company, 8490 Sunset Boulevard, Los Angeles, California 90069: Robert E. Petersen, 8490 Sunset Boulevard, Los Angeles, California 90069
8. Known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages or other securities: None
9. For optional completion by publishers mailing at the regular rates (Section 132.121, Postal Service Manual):
39 U. S. C. provides in pertinent part: "No person who would have been entitled to mail matter under former section 4359 of this title shall mail such matter at the rates provided under this subsection unless he files annually with the Postal Service a written request for permission to mail matter at such rates."
In accordance with the provisions of this statute, I hereby request permission to mail the publication named in Item 1 at the reduced postage rates presently authorized by 39 U. S. C. 3626.
(Signature and title of editor, publisher, business manager, or owner) Dick Day—Publisher
10. For completion by nonprofit organizations authorized to mail at special rates (Section 132.122, Postal Manual): Does not apply
11. Extent and nature of circulation:

	Average No. Copies Each Issue During Preceding 12 Months	Actual Number of Copies of Single Issue Published Nearest to Filing Date
a. Total no. copies printed	1,197,310	1,088,386
b. Paid circulation		
1. Sales through dealers and carriers, street vendors and counter sales	396,197	364,209
2. Mail subscriptions	406,863	377,352
c. Total paid circulation	803,060	741,561
d. Free distribution by mail, carrier or other means		
1. Samples, complimentary, and other free copies	3,903	4,714
2. Copies distributed to news agents, but not sold	376,141	337,687
e. Total distribution (Sum of C and D)	1,183,104	1,083,962
f. Office use, left-over, unaccounted, spoiled after printing	14,206	4,424
g. Total	1,197,310	1,088,386

I certify that the satements made by me above are correct and complete.
Dick Day, Publisher



"I think he's trying to psyche you out."



Want to Be Your Own Boss?

Put Yourself In Our Shoes!

Owning and operating a Speed Equipment World store can put you in the big profit picture with $20,000 to $25,000 annual net income potential for yourself; plus security, prestige and the excitement of being in a business you know you'll love. But the question is, can you qualify? Do you have the background of solid success? A neat appearance? A pleasing personality? $15,000 to $25,000 total cash investment?

Previous experience is not necessary because the corporation sets up each store completely. Then each man selected is trained in all phases of the Speed Equipment World business. Financing assistance available. For complete information about how you can own your own speed center write at once to SPEED EQUIPMENT WORLDS OF AMERICA INC., 1326 Inwood Road, Dallas, Texas 75247.

SPEED EQUIPMENT WORLD

THE RACER'S CHOICE (formerly National Speed Centers)

JOIN OUR NATIONWIDE DISCOUNT CLUB

Lifetime Discount Club memberships are available at all Speed Equipment World stores coast to coast. Price $3.00

NATIONAL SPEED CENTER DISCOUNT CLUB CARDS ARE HONORED AT ALL SPEED EQUIPMENT WORLD STORES.

BE SURE TO ATTACH THIS COUPON TO YOUR LETTER:

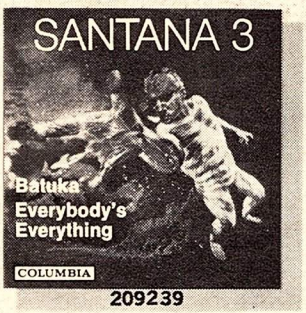
TO: SPEED EQUIPMENT WORLDS OF AMERICA, INC.
1326 Inwood Road, Dallas, Texas 75247

NAME:_____

STREET_____

CITY_____ STATE_____ ZIP_____

PHONE: (A/C) _____ AGE_____



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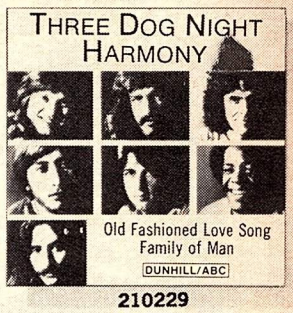

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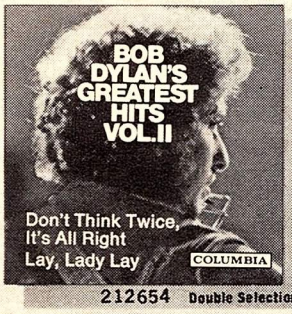
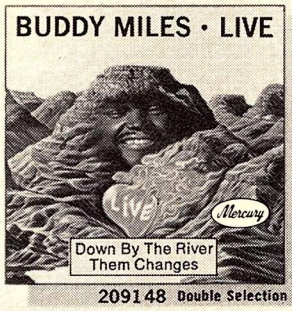
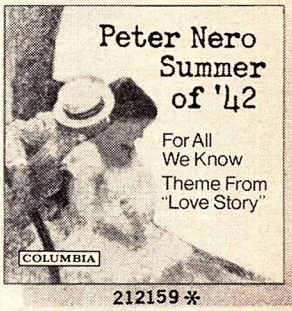


212654 Double Selection

209726 Double Selection



209148 Double Selection



212159 ✻

NOTE: "Double Selections" are 2-record sets or twin-pack tapes — yet each counts as only one selection

Any 12 records—$2.86 plus processing and postage

if you join the Columbia Record Club and agree to buy 10 records (at regular Club prices) in the next 2 years

210203

210179

210112

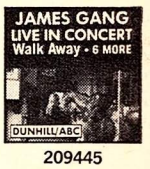
208363

207993

208868

209114

207662



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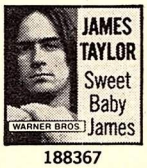

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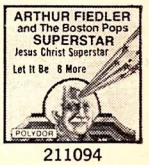

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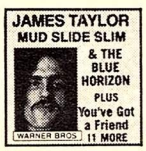

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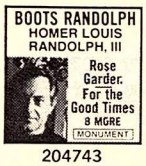

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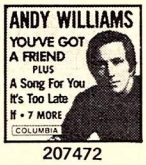

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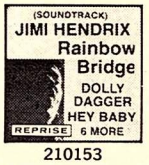

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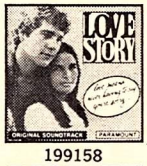

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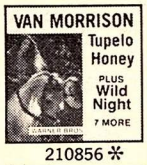

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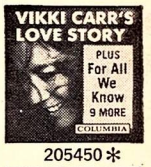

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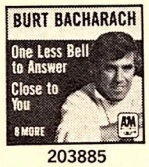

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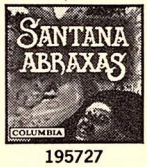

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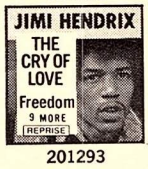

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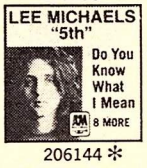

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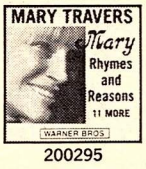

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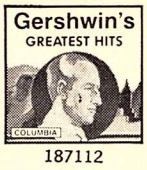

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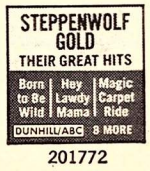

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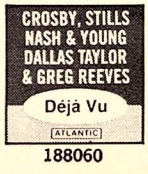

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210138

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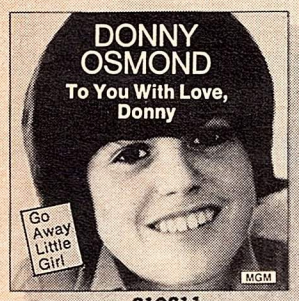
✻ Selections marked with a star are not available in reel tapes



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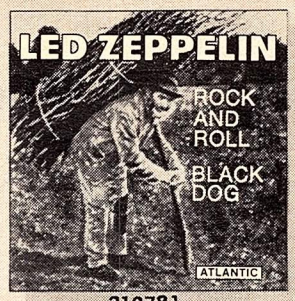

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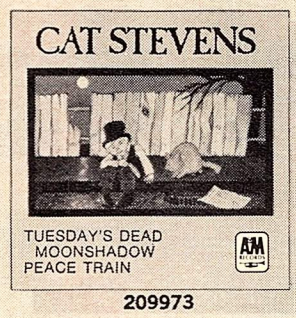

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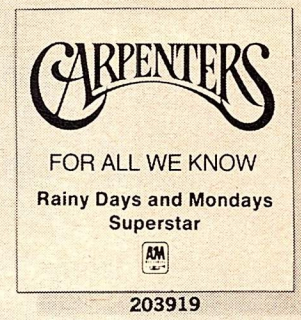

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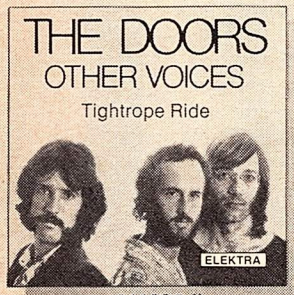

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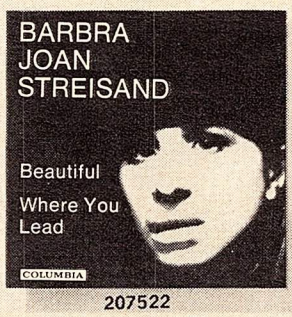

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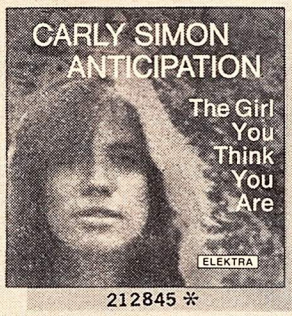

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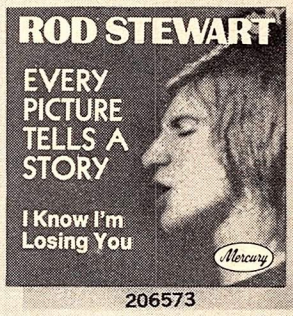


206573

OR Any 8 tapes—$2.86 plus processing and postage

if you join the Columbia Tape Club and agree to buy 7 tapes (at regular Club prices) in the coming year

8-Track Cartridges | Tape Cassettes | Reel-to-Reel Tapes

Just look at this great selection of recorded entertainment — available on records *or* tapes! So no matter which type of stereo equipment you now have — you can take advantage of one of these introductory offers from Columbia House!

If you prefer your music on 12″ Stereo Records join the Columbia Record Club now and you may have ANY 12 of these selections for only $2.86. Just indicate the 12 records you want on the postpaid application card — and mail it today. In exchange, you agree to buy as few as ten records (at the regular Club prices) during the coming two years . . . and you may cancel membership any time after doing so.

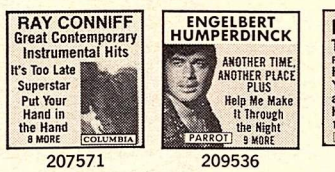
OR — if you prefer your music on Stereo Tapes join the Columbia Tape Club now and take ANY 8 of these selections for only $2.86. Just write in the numbers of your 8 selections on the application — and be sure to indicate whether you want cartridges *or* cassettes *or* reel tapes. In exchange, you agree to buy as few as seven selections (at regular Club prices) during the coming year . . . and you may cancel membership any time after doing so.

Your own charge account will be opened upon enrollment . . . and the selections you order as a member will be mailed and billed at the regular Club prices: records, $4.98 or $5.98; cartridges and cassettes, $6.98; reel tapes, $7.98 . . . plus a processing and postage charge. (Occasional special selections may be somewhat higher.)

You may accept or reject selections as follows: whichever Club you join, every four weeks you will receive a new copy of your Club's music magazine, which describes the regular selection for each musical interest . . . plus hundreds of alternate selections from every field of music.

- . . . **if you do not want any selection** in any month, just return the response card provided by the date specified
- . . . **if you want only the regular selection** for your musical interest, you need do nothing — it will be shipped to you automatically
- . . . **if you want any of the other selections offered,** order them on the response card and return it by the date specified
- . . . **and from time to time** we will offer some special selections, which you may reject by returning the dated form provided . . . or accept by simply doing nothing.

You'll be eligible for your Club's bonus plan upon completing your enrollment agreement — a plan which enables you to save at least 33% on all your future purchases. Act now!



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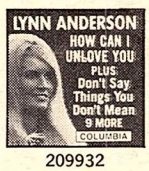

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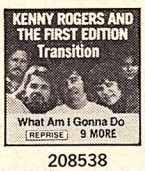

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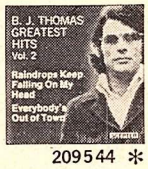

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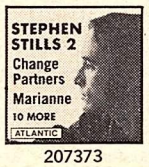

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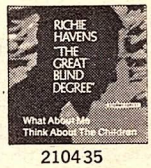

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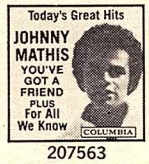

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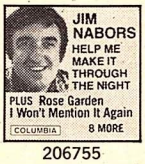

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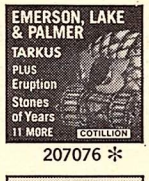

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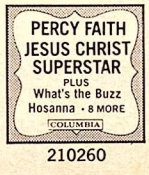
Columbia House
Terre Haute, Indiana 47808
B70/S72

210195

196717



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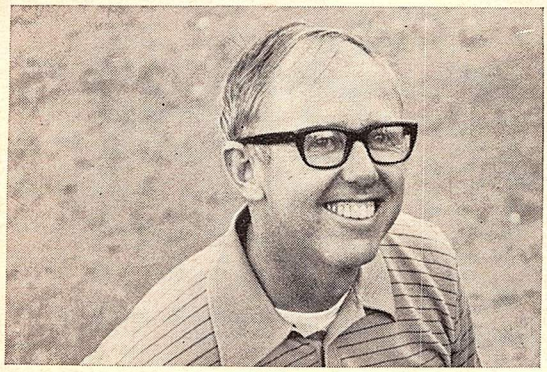
HOT ROD REPORTS ON the SEMA scene

Doug Toms named SEMA's Man of the Year



DOUG TOMS

National Highway Traffic Safety Administration Director Doug Toms was named SEMA Man of the Year at the 1972 SEMA Show. Selected by unanimous action of the Executive Committee, Toms was honored for his service in behalf of safety on the American road. In announcing the selection, SEMA President Vic Edelbrock referred to Toms as a man who utilizes intelligence and common sense in the performance of his official duties. Mr. Toms has a long and distinguished career as an administrator of motor vehicle-related programs on both state and Federal levels. He is recognized as an outdoorsman, with a strong interest in motorcycling, skiing and mountain climbing, as well as all forms of auto racing.

The SEMA Man of the Year Award was first presented in 1970, when it went to Astronaut/car enthusiast Charles Conrad, and ABC sports commentator Keith Jackson was the recipient in 1971.

Some weeks prior to receiving his award, Mr. Toms attended the inaugural meeting of the SEMA Safety Committee and expressed a general enthusiasm for the self-policing approach being taken by the large segment of the automotive aftermarket that SEMA represents. At the request of committee chairman George Hurst, Toms commented on objectives of the committee as he saw them, indicating the following:

— That government regulation is a two-way street, requiring communication between government and industry, and that such a working committee composed of experts from an industry can work with the Department of Transportation.

— That the racing fraternity could prove a valuable source of information on such areas as product inspection, vehicle inspection and evaluation of accidents.

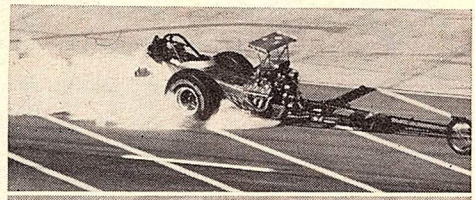
— Prime areas of concern were indicated as wheels, shock absorbers and suspension.

— That a cooperative effort in select areas should result in joining Washington staff and SEMA committee meetings on subjects of mutual interest.

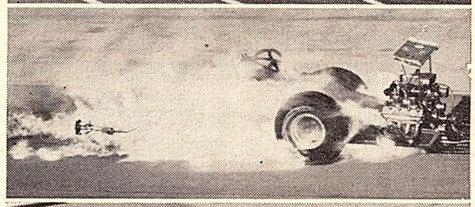
These remarks were taken as good indication that committee efforts in all areas of vehicle safety would be well-received by Federal safety officials.

MAN UNDER FIRE

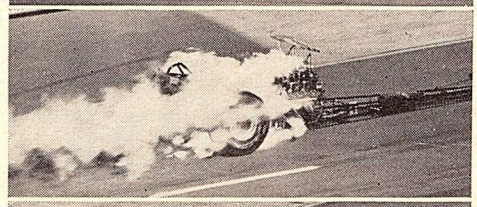
Dramatic proof of the protection afforded drivers by the new "Meets SEMA Specs 3-2" firesuits was unintentionally supplied by Roger Gates at the Supernationals. Driving the hard-running Cracklin' Rose AA/FD in the first round of eliminations, Gates was totally engulfed in flame when a connecting rod broke and cut through the oil pan as the car was approaching the traps. Roger was wearing a new SEMA "3-2" firesuit, and it is generally agreed that the tougher specifications made the difference that prevented serious injury, Gates emerging unhurt. The 3-2 spec was made mandatory by all racing associations on January 1, 1972. The major aspect of the specification is that the suit will sustain a mean temperature of 1850° F. for ten seconds without permitting the inner surface to exceed 180° F. Liquid permeability of the suit material and degree of coverage of the face mask and gloves are also delineated. The photos below, taken by Steve Reyes and supplied by SEMA, show the intensity of the fire that Gates experienced. ■■



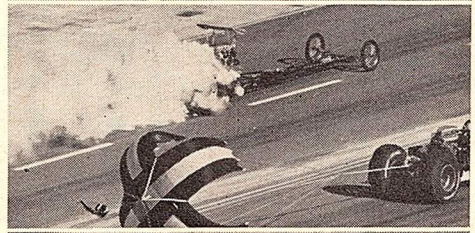
As Roger Gates trips the lights, a broken rod ventilates the pan and an oil fire erupts.



The chute release is pulled as the fire sweeps upward and consumes the small pilot chute.



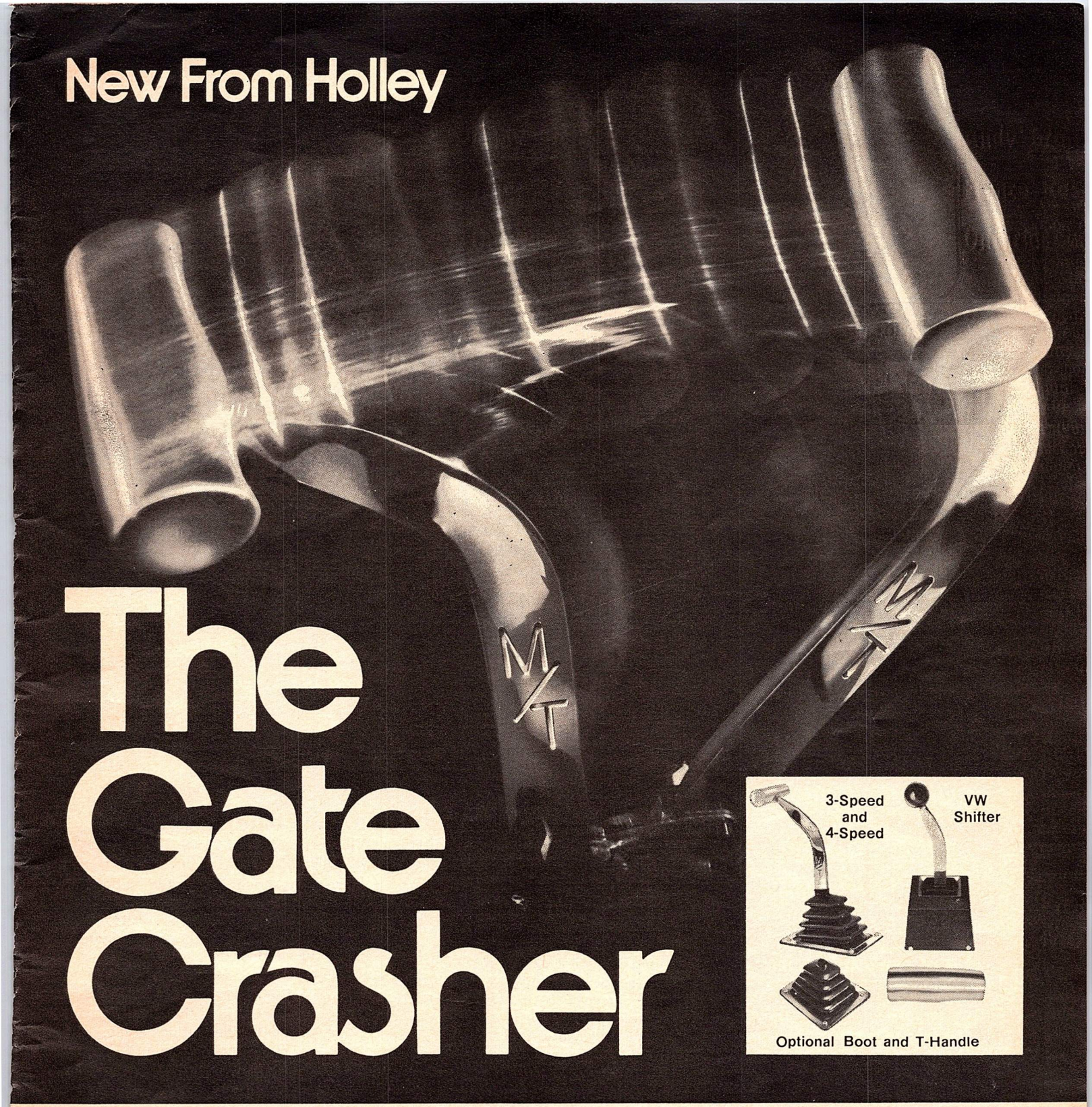
Air flow has drawn burning oil over the engine, enveloping Gates. Fire in headers indicates blown piston or wall.



Gates does superb job of handling, keeping the car straight and on his side of track.

Fire subsides and fully deployed chute brings Gates to safe halt, unhurt!

New From Holley



The Gate Crasher

It's the newest idea in short-throw, narrow-gate shifting . . . and it won't cost you an arm and a leg.

Choose from a deluxe 3-speed . . . a rugged 4-speed . . . or the neatest, simplest stick for VW's on the market. All are quality built and backed by Holley/Mickey Thompson - the product line racers count on for real bolt-on performance.

M/T's great new line of Competition Shifters is waiting for you at your local speed shop or parts store . . . along with Holley's complete Bolt-On Performance Lineup for '72. Send $1.00 for new 1972 Holley-M/T Catalog 73000-2.

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C-172

Colt Industries **Holley Carburetor Division**

P.O. Box 749 Warren, Michigan 48090

A LITTLE GUY

I agree completely with Editorially Speaking that appeared in the November issue of *Hot Rod*. Something must be done to preserve the little guy and create new interest in drag racing. Your two suggestions of a Junior Modified Production class and a Junior Pro Stock class are good and should become a reality. I also have some suggestions I would like to give and hope they can be useful.

The Pure Stock classes we have now should become nationally recognized classes. The optional Volks classes should also become nationally recognized classes. These classes would also have an eliminator such as the ones we have now. The new imports and the new small domestic cars would be classified by weight and power such as the Stock class cars are now. Modified cars that fall into this new category would run in Modified Production classes based on the same rules we have now.

These changes would double the number of classes. It would draw more participants and create a new interest in drag racing. The manufacturers would rush in turning out newer equipment and doing more development on these cars. With all the problems of ecology and higher insurance rates, we'll have to come to this anyway; so why not now, beginning in the '72 rules, instead of waiting until it is too late? In the end, I feel we all would benefit and save our sport.

Howard P. Campbell
Gowanda, New York

As of this writing, the situation concerning the eligibility of the small imports to run in the NHRA Stock Eliminator category is in limbo — chiefly because of the lack of reliable tech info on these cars available to NHRA. Hopefully, this will soon be remedied by the factories. — Editor

PEN FRIEND

I am 16 years old and live in a rural village in Northwest England. I would be very grateful if you could help me find an American pen friend of similar age.

I have many interests, but I am particularly interested in motorsports, both English and American. At present, I take part in bicycle road and track racing and am a member of a local club.

I have started an engineering apprenticeship with a local engineering company. My apprenticeship will end when I am approximately 23 years old, by which time I hope to be a fully qualified design draftsman, at least. My ambition is to design and race cars.

The reason I chose to write to you is that I read *Hot Rod* Magazine quite regularly, and if you could possibly help me to find a pen friend, it would no doubt be an American boy with similar interests to mine. Thank you.

Kevin A. Page
11 Highfield Road
Mellor Nr. Stockport,
Cheshire, England

SALTY TALK

Hot Rod Magazine has been as traditional to Speed Week as the salt itself, and 1971 was no exception. We would like to express our appreciation for bringing to your readers "Great White Dyno" in the November 1971 issue, as well as the "Up On Two Wheels" coverage by Bob Greene.

The Speed Week participants and enthusiasts contribute a major effort in the presentation of hot rodding and the Speed Week image through their membership in B.N.I.

If the *Hot Rod* Magazine readers would like to learn more about B.N.I. membership or Speed Week in general, they may write or phone Bonneville Nationals, Inc., 11919 East Washington Blvd., Whittier, California 90606. Phone (213) 693-9400.

The 24th Annual Bonneville National Speed Trials are scheduled for August 20-26, 1972. We will look forward to seeing *Hot Rod* Magazine there, and invite all racing enthusiasts to attend this unique event.

Emil Grisotti
Chairman of the Board
Bonneville Nationals, Inc.
Whittier, California

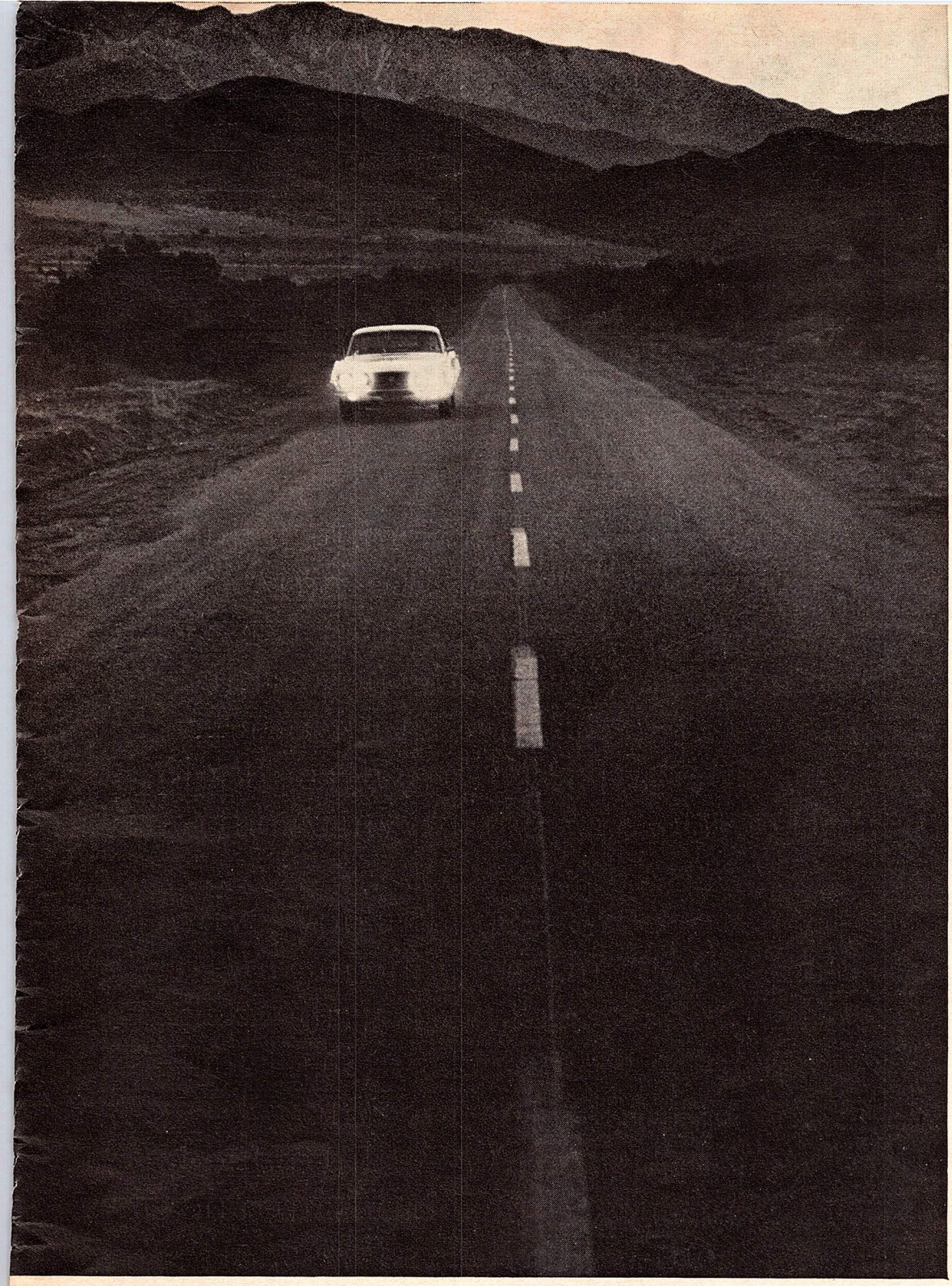
Thanks for the kind words, Emil. As long as Bonneville is run, you can rest assured we'll be there. — Editor

SHADETREE FAN

I'm writing to express my appreciation for your fine magazine. I've enjoyed it for many years, and judging from your editorial and the article by John Fuchs entitled "Shadetree Musclecars" in the December edition, I'm going to enjoy it even more in the future.

A large percentage of your car-building readers fall somewhere between "vintage tin" and "funny car" owners.

(Continued on page 26)



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post entry

Your so-called shadetree musclecars are excellent examples of these in-between machines. I believe that a couple of pages a month devoted to these cars would be a valuable addition to your magazine. Every city has its own collection of these street machines, so there shouldn't be any shortage of material for future editions.

Robert L. Keiffer
Rochester, New York

We realize the strong interest in the segment of which you're speaking and plan to concentrate on it as much as possible in future issues. — Editor

TEEN ANGEL'S GHOST

I wonder if you might be able to tell me what the 'fifties-vintage hot rod term "short" means. The word was most recently used in a popular soft drink advertisement featuring Teen Angel's ghost.

The term was also sung in hot rod songs of that era such as ". . . two cool shorts standing side by side . . ." in "Shut Down" by the Beach Boys.

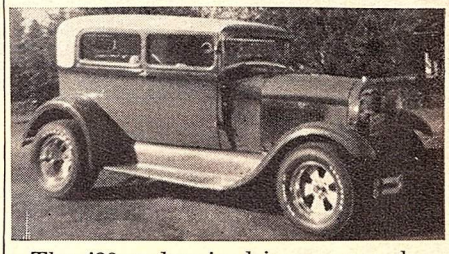
A meaning to go with this early rodding description would be greatly appreciated.

Kent Oberle
Milwaukee, Wisconsin

Car. — Editor

ALL IN THE FAMILY

Enclosed you will find some snaps of our favorite hobby — building, racing and driving cars. I know you must receive hundreds of pictures a day about people and their cars, but I really am very proud of my husband and the super job that he does on all our rods. Bob does all labor, painting and making of our wheels for the cars. The only work done outside is the interiors.

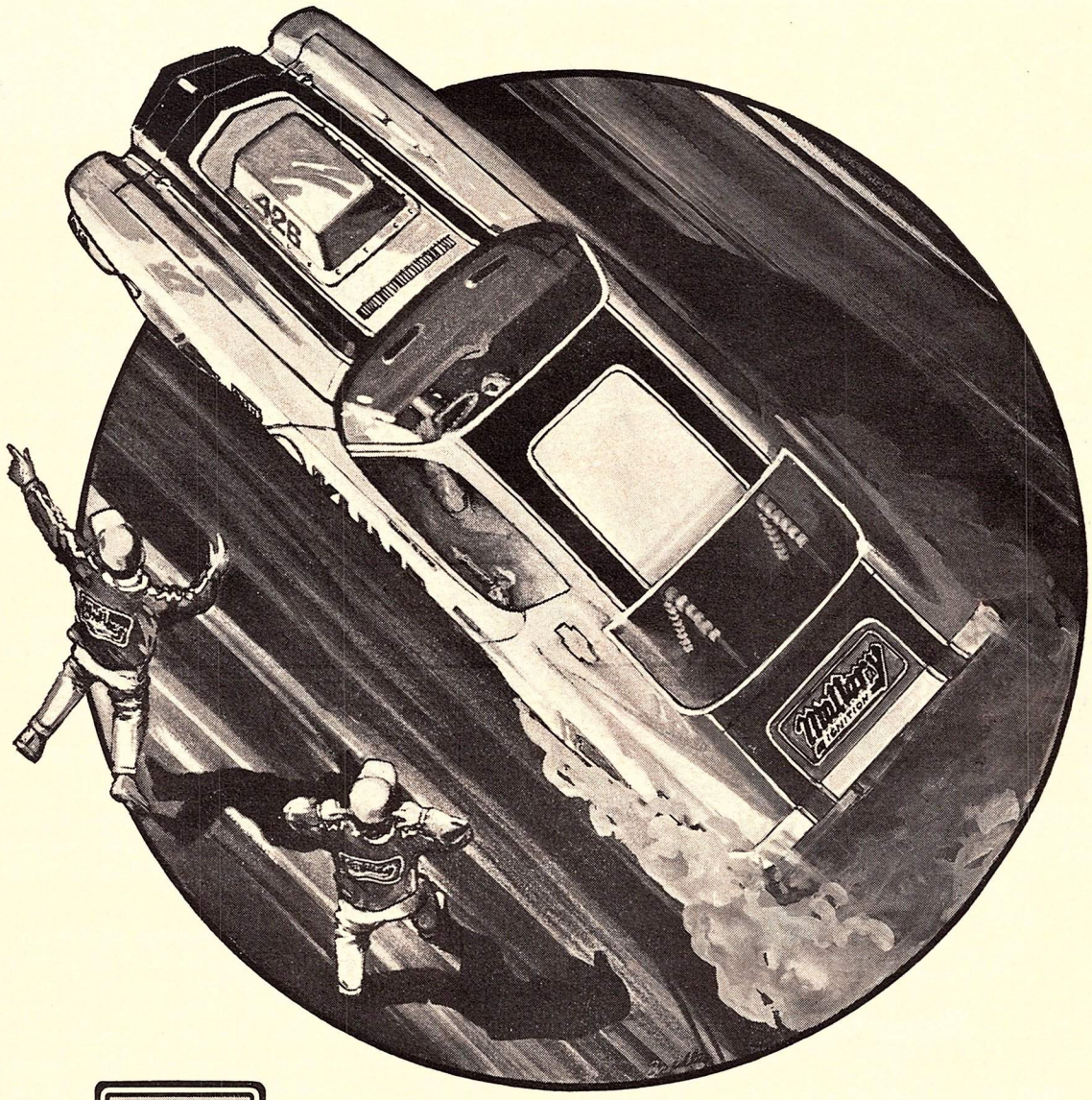


The '29 sedan is driven every day, as it is our family car. Actually, it's "Ma's" car — power front disc brakes, power steering, automatic. Our little '30 roadster is "Pa's" pride and joy — 289, four-speed and it really gets with it. Our flathead is our fun car. On any given Sunday, you'll find us at Sacramento Raceway having a ball.

We have a new project which is very

(Continued on page 28)

TOTAL PERFORMANCE!



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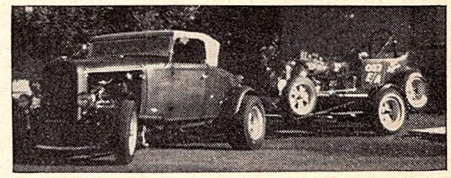
SEMA

post entry

exciting, as it will be the one and only car that we will enter into a car show.



It is a 1936 Dodge Sedan Delivery. We just disassembled a 1970 Mach I for the running gear. It will be a 351 four-speed — a family car.

These cars are all hobbies done in spare time and weekends. We really do think "Street is Neat."

Jo Ann Jeffords
Paradise, California

Pretty wild family transportation you have there, Mrs. Jeffords. Send us a picture of the Sedan Delivery when it's finished. It sounds like it will be outa-sight. — Editor

BIKE BOOSTER

In regard to your article "OSSA Makes It": Thanks for appreciating a good bike when you see one. If you want a *real* kick, try a Stiletto 250.

Keep up the bike articles.

John Gilmer
San Diego, California

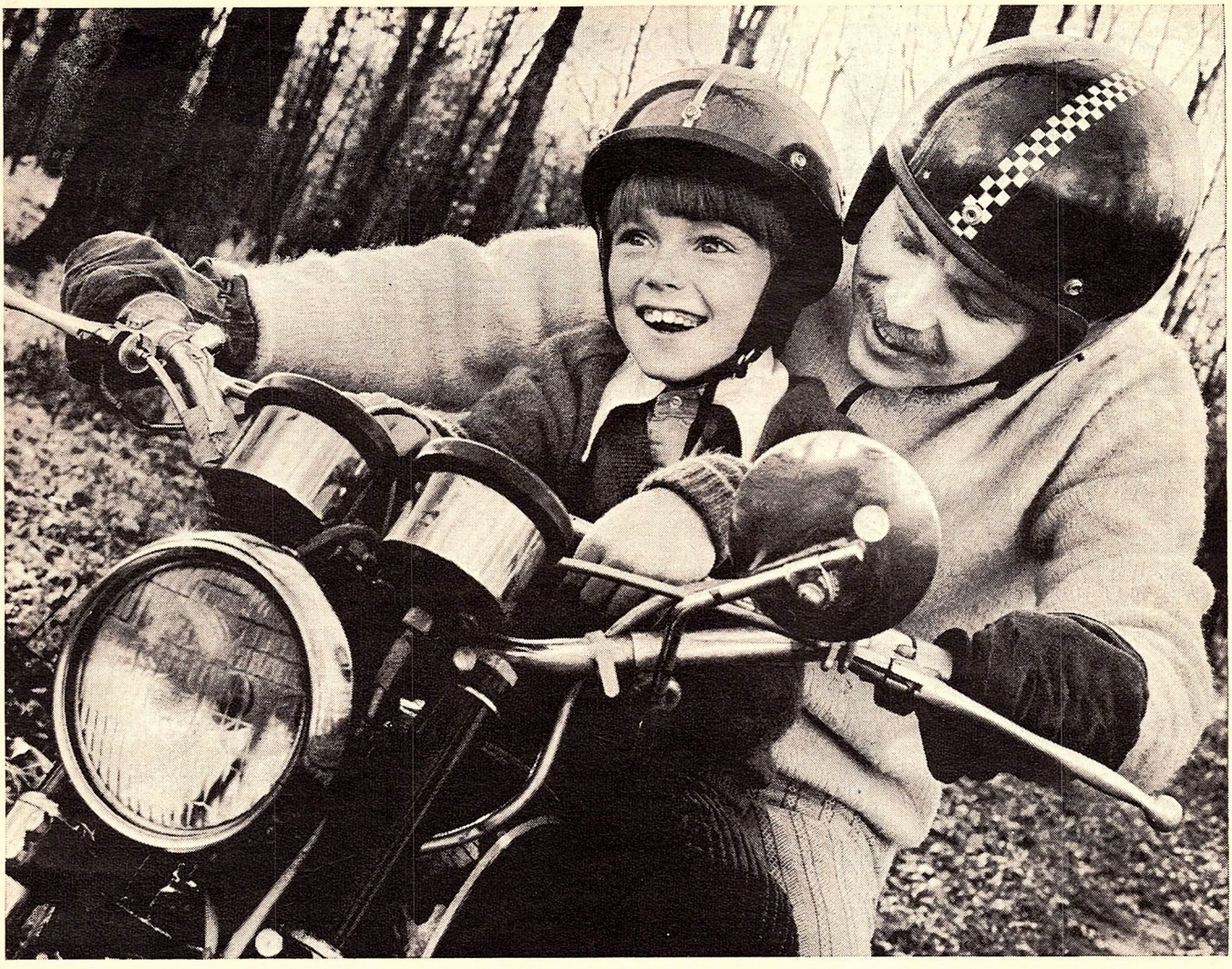
Bob Greene appreciates your comments, John. Don't worry; the motorcycle articles are a very important part of our monthly offering. — Editor

DIVIDE AND CONQUER

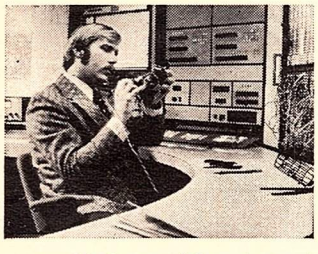
I'm confused about something, and I wonder if you could set me straight about it? While flipping through the June '71 *Hot Rod* (which, by the way, was great, especially the section on Pro Stocks), I ran across something in the "What's New" section that I hardly know a thing about. It's about the NHRA divisions. On the badges pictured, they have "Land of Ned" (Division 1), "Buster's Rebels" (Division 2), etc. What does all this mean? How do you find out your division?

John Tinker
Darien, Connecticut

Very simply, John, the National Hot Rod Association has the United States divided into seven geographical areas. Each has been given a Division number. The descriptive tags hung on each Division have come about through the years as a result of the friendly competition between the Divisions. Additional information is available by writing to NHRA, 10639 Riverside Drive, North Hollywood, California 91602. — Editor



All week long, Gary Paine stops vehicles with a computer.



He's working to put an improved vehicle on the American road. Not just for himself, but also for the future of his "Little Brother," Jon Henderson.

Big Brother Gary Paine is an engineer at the research laboratory of AC Spark Plug Division in Flint, Michigan. His current project, the Wheel Lock Control System, is part of GM's Engineering Safety Vehicle (ESV) program.

Gary is programming an analog computer (a device for simulating real situations on a wiring circuit) with actual vehicle braking conditions. Once wired, almost any driving condition may be duplicated and the effects measured.

In this way, he's working on braking system designs which under most conditions will further reduce vehicle stopping distances while improving vehicle stability and handling.

Gary and Jon are in the Big Brother program: a non-profit organization that matches fatherless boys with "Big Brothers"; then plans activities and encourages a close and lasting relationship.

For two years now, he and Jon have been sharing part of their lives in such activities as camping, skiing, tobogganing, motorcycling, football games and—yes, a little schoolwork, too.

Gary Paine is a warm and generous person with genuine concern for others. He's an example of the kind of interesting people that make GM work.

GM
MARK OF EXCELLENCE

General Motors

Interesting people doing interesting things.

canada!

By Lance Hill

A recent issue of the *Toronto Sun* daily newspaper carried an article proposing that all Canadian auto racing be combined. The opening paragraph read, "All Canadian auto racing — sports cars, dragging, off-road racing and maybe even stock car racing — could be united under one governing body. This seems to be the intent of the Canadian Automotive Sports Clubs, the federation of sports car clubs that makes the rules for road racing and ice racing." The "feeler" to this effect by CASC is in the form of a white paper issued by them and under consideration by their member clubs. To our friends who are confused by the term white paper, it is simply a highly overworked phrase of dubious origin which under no circumstances should ever be eaten.

In the week following the press release, I received many calls from interested folks who wanted to know more on the subject: the pros and cons, how it might affect them as fans, racers, workers, owners, etc. More than a few were quite concerned about the idea, and many of the informed people voiced definite opposition to the proposed move toward CASC. In general, here are a few observations:

Of greatest concern to me is the fact that CASC has not contacted the acknowledged experts on Canadian drag racing for information and opinions.

Sports car racing is by far the smallest segment of Canadian auto racing, yet they have the most organization and certainly the best connections. As a contrast, stock car racing is very loosely structured, while drag racing lacks Canadian organization.

A marriage of drag racing and stock car racing could be a profitable revenue vehicle. The question is what degree of organization and payouts will the racers receive in return?

CASC's image as a social club rather than a business-racer organization might work against them.

It *could* be a constructive move. Canada is an entirely separate entity and as such has its own problems. Auto sports should be handled differently in this country and should be adapted solely to our environment. I'm for the move *if* it's handled well.

A change is definitely needed in Canadian drag racing, as well as in stock car racing. This is especially true in the area of rules standardization, rules enforcement, business practices and just plain organization.

It is an interesting turn of events, and I hope to have more details shortly. And what about snowmobile drag racing? Now there's a sleeper! How much money does your drag strip make when it's under a foot of snow? *PERFORMANCE ENGINEERING RACING TEAM* . . . P.E., one of Canada's best-equipped racing engine shops, is owned by Dave Billis. Although a principal in the huge Canadian Tire Corporation, Dave's first love is racing cars. He has been active the past couple of years with a McLaren Can-Am car which he campaigned with driver John Cordts. He is expanding his racing efforts greatly with the addition of a Mini-Pro drag car, and a late-model stock car as well. Dave's trademark has always been top-drawer equipment, and these cars will be no exception. Billis' firm is building the engines, while the very capable Brad Francis is building the cars. This, coupled with some other large sponsors on the wagon, should make for some "heavy" racers. *HOT SHOTS* . . . Toronto International Drag Strip is cooperating on some joint television commercial filming with the Martin, Michigan, strip and California's Orange County International Raceway . . . John Phillips, performance honcho at Ford of Canada for the past few years, is moving to his own company, manufacturing dress-up parts for Fords . . . The "Thrush" touring display seen at major races last season will be on tour again this year, but without "Dizzy Dean" Murray, who is at *Wheelspin News* looking after business . . . George Foote, popular owner of the Karbelt franchise speed shops in Canada, has recovered from his recent illness . . . Canadian participation at this year's winter meets is rather slim, with Barrie Poole, John Petrie and Pete Fedun the main force . . . To answer those who asked: In all recent polls, Marty Barratt, Division III's super tech man, is the most popular American in drag racing circles north of the border . . . The word out of Montreal is that the troubles of the past two years have had a drastic effect: It's a much quieter city and has lost much of its excitement and zip.

See you next issue. ■■

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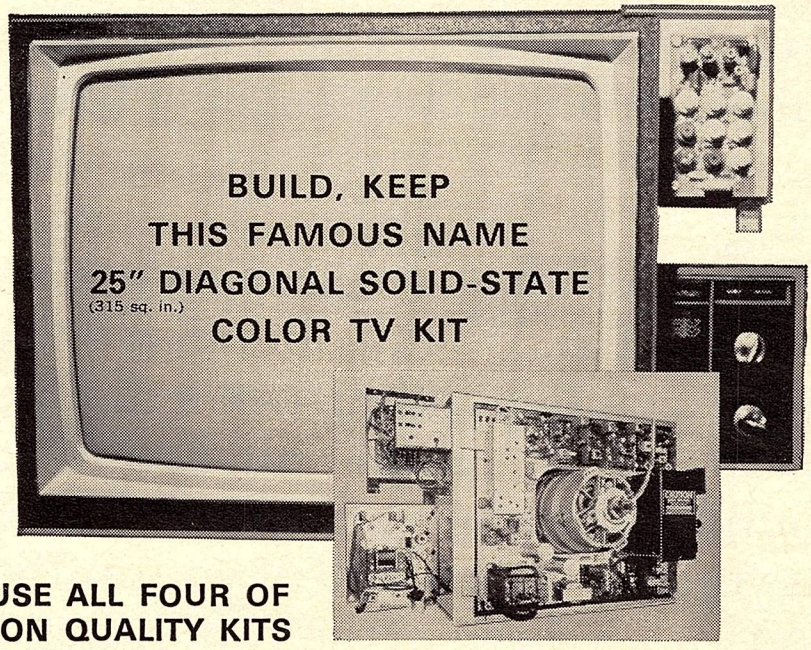

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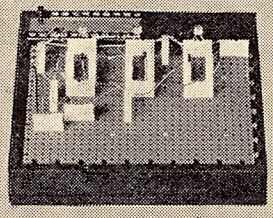

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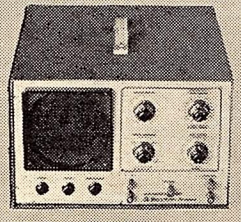

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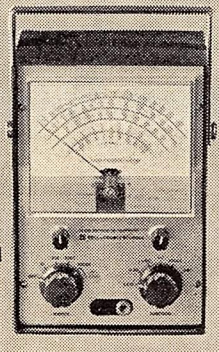

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Note: TV picture is simulated.

(TV kit is not available in Canada)

321

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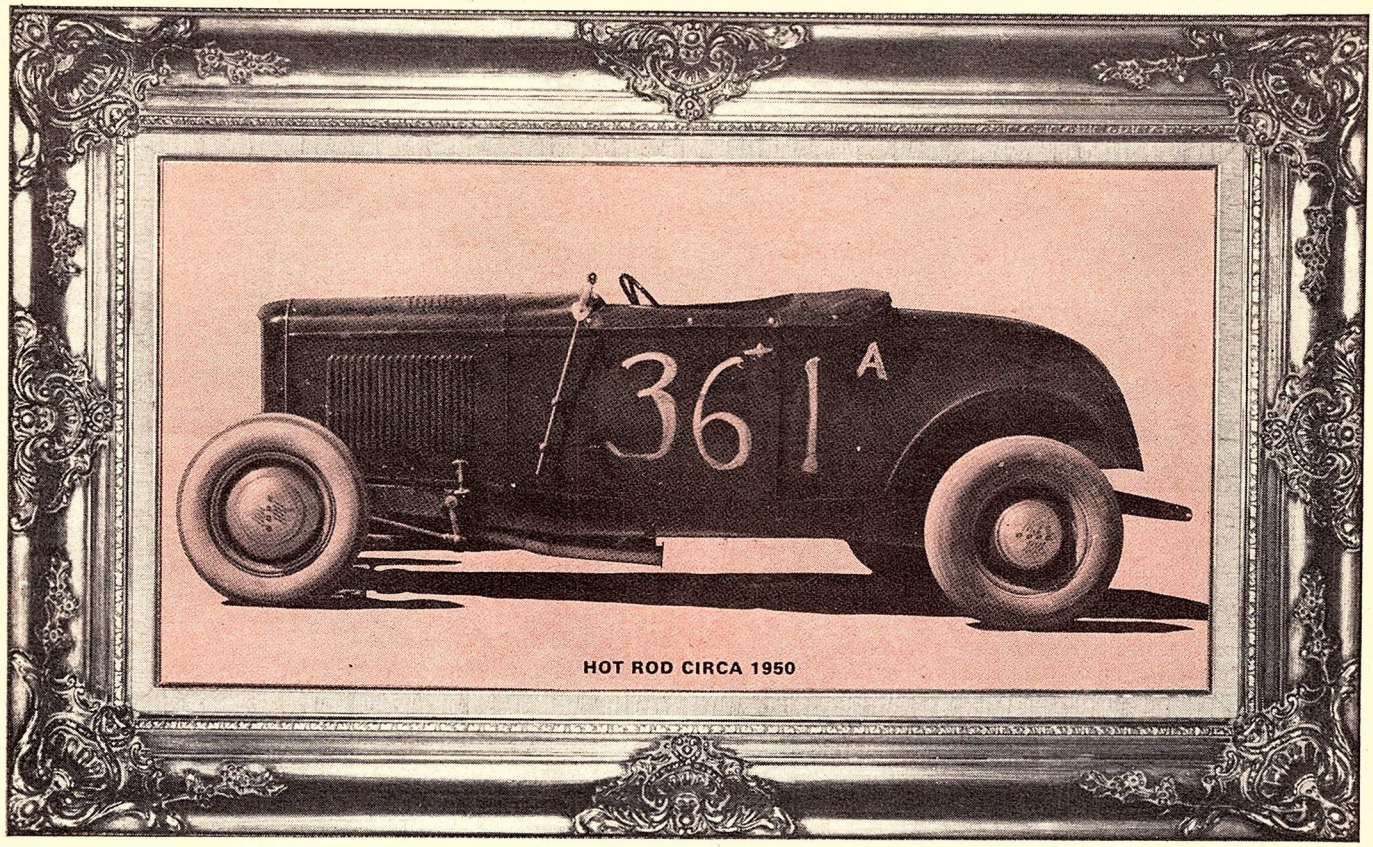
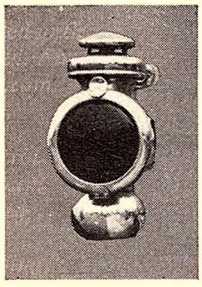


HOT ROD CIRCA 1950

THE ROADSTER:

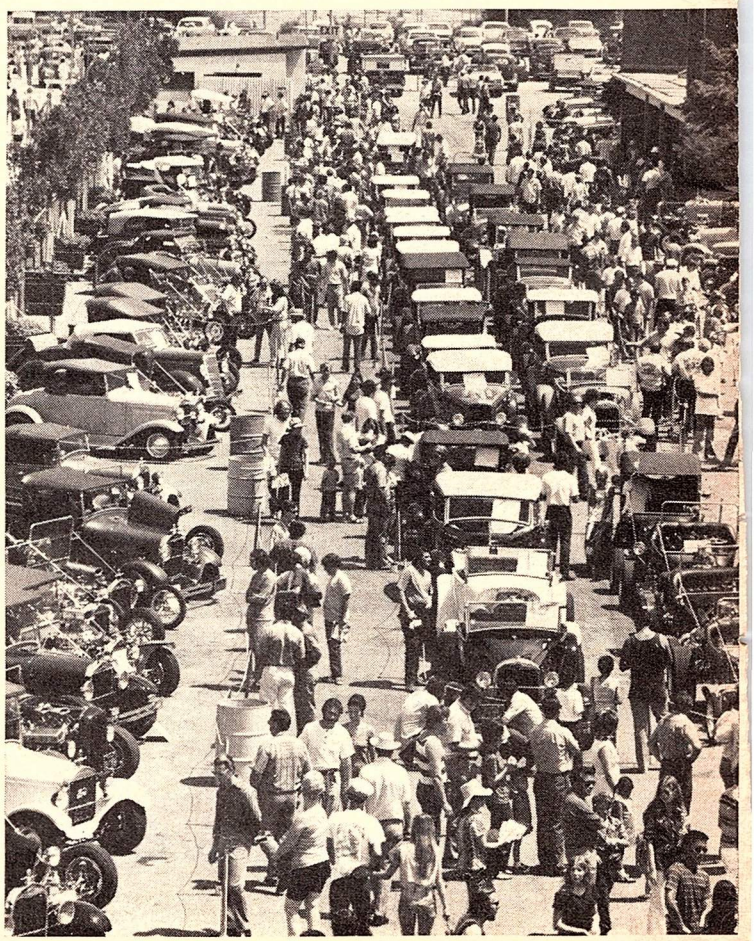
by TOM SENTER

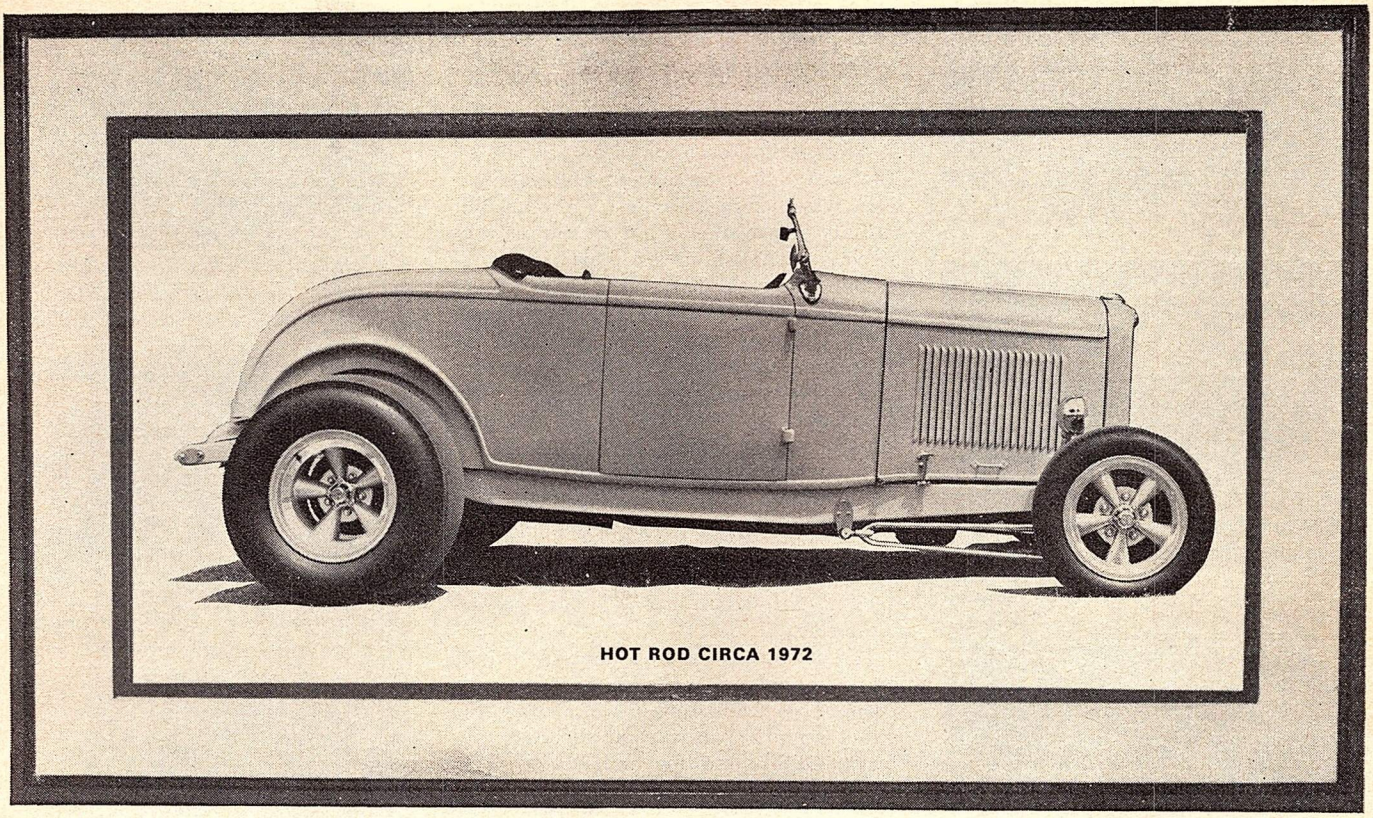
The handling, quality and meticulous detailing of modern street roadsters make them the rivals of some of the world's finest production automobiles



All through the history of hot rodding, building and driving roadsters has remained one of the most satisfying ways a car enthusiast can express himself. No single vehicle is more typically a hot rod than the roadster. Maybe it's because the very soul of the sport is personified in the cut-down, perhaps fenderless, '29 or '32 lakes highboy. Hot rodding was born on the dry lakes. Back before the war, when Friday night rolled around the fenders were pulled off the daily transporter (most often a Ford roadster), the generator and street carburetion were yanked and replaced with a three-jug manifold and perhaps higher compression heads, and off they went to Harpers or El Mirage, equipped with sleeping bags, end-wrenches and a slew of "97" jets. And Sunday night it was thrash-time to get the thing back into shape for work or school Monday morning.

With luck, maybe the time came when another car joined the stable for yeoman duty, and the lakes machine was no longer called upon to double as street transportation. Sometimes, modifications got wilder and wilder until very little was left of the old, pristine Henry Road Duster. (Early hard-core lakes associations were so dedicated to the open models that coupes and sedans were banned from running, so they had to form organizations of their own.)





HOT ROD CIRCA 1972

PICTURE FRAMES COURTESY OF AARON BROTHERS

STILL KING

They took to the street and terrorized local neighborhoods. They broke the ribbon at Santa Ana at the first drag races. They went on roadster runs in the late 'forties, the Pasadena Reliability Runs, and they showed up with a coat of paint and maybe even upholstery.

Builders learned better construction techniques, bought more tools of their own, and pored over tons of *Hot Rod* Magazines to see what the other guys were doing. Speed equipment manufacturers produced thousands of parts to help home-builders, and better roadsters were the result. Today the handling, quality and meticulous detail of the modern street roadster rival some of the finest automobiles built anywhere in the world.

But during the last decade, battalions of car buffs satisfied their desires for higher performance or gratified their egos with thousands of circuslike efforts from Detroit. You could sign your name on a contract and buy anything: 500 horsepower Hemis, racing stripes, vacuum-operated air scoops, mag wheels, phony mag wheels, tachometers, trick hound's-tooth upholstery . . . who needed to build a hot rod roadster from the ground up?

Detorit's latest were beefed with monster-fats, spoilers, kick stand mufflers, sunroofs, more gauges, wilder paint . . . oops, there goes the price a little, and a little more, but "I got me a funny car." Bankbook hot rodding turned the percentages around until, although more rods were being built than after the war, they were far outnumbered by factory "hot rods."

Few buyers scrambling for the "newest and hottest" realized that a 350-hp '60 Chevy Impala or a '64 GTO would blow the doors off any of the '72-model rockets in stock form. Even fewer knew of the days when a 296-inch flathead-powered Model A would reach 140 mph on the salt flats or the lakes. Well, the factory hot rod is a dying issue, in case you hadn't noticed.

One day a lawyer from New York, who doesn't even own an automobile, pointed to wheel knock-offs and hood ornaments and decreed them lethal to pedestrians. The dam had sprung a leak, and politicians and insurance companies set forth reams

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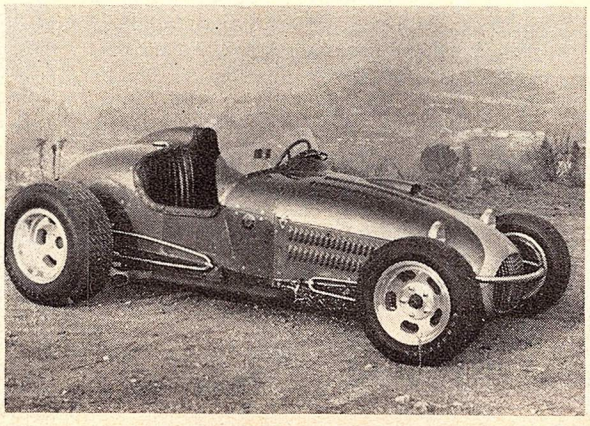
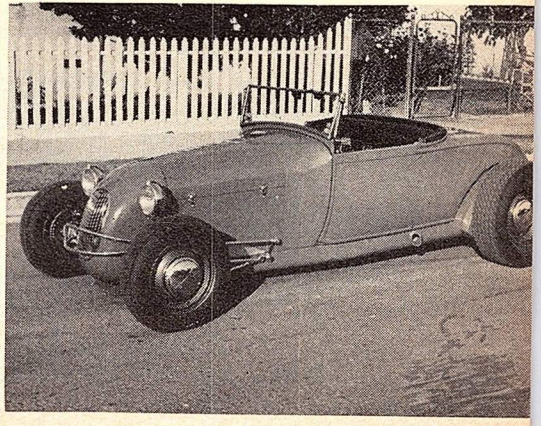
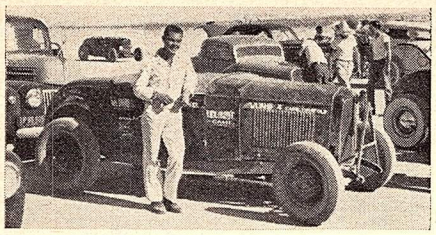
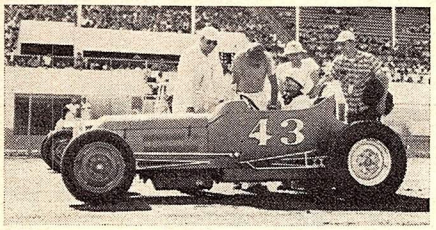




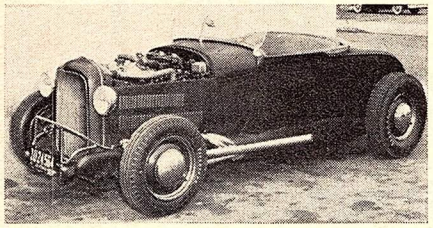
TOP — 21 years of roadster progress — from El Mirage, 1950, to the Street Rod Nationals, 1971. LEFT — Roadster Exhibition, Los Angeles, typifies current street rod boom. RIGHT — Old Rods never die. Proof lies in this 18 year-old street special built by Kurtis in '54, now greatly enjoyed by Norm Crum. FAR RIGHT — Bill NieKamp's 1950 Oakland winner is fully restored, flathead and all, by owner Jim Jacobs, who drove her to Memphis.



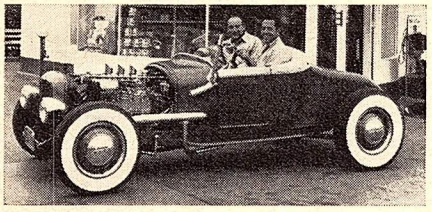
◀ *Snapped at the Rusetta meet, El Mirage 1951, Bruce Robinson's Deuce served as a test-bed for Weiand 4-carb manifold.*



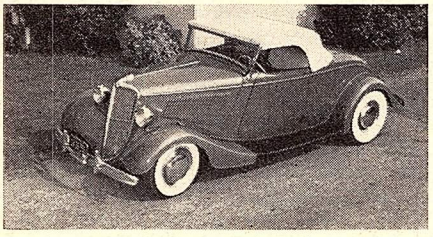
Perfectly detailed Spaulding Bros. tracker was post-war track terror, ran 148 at Bonneville with injected Wayne Chevy 6.



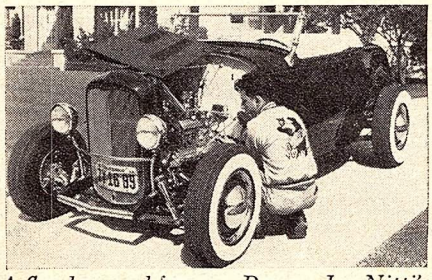
Wild dual McCullough-blown 296-inch Merc flatmotor pushed Carl Fleishman's unusual belly-panned highboy.



What better way for Lou Banta and Sal Macchia to boost sales than with this trim '27 on Deuce rails? Circa 1950.



If Jerry Eisert's '34 doesn't turn you on, then you don't dig hot rods. Classy rod was 1953 "Hot Rod" feature car.



A flawless and famous Deuce: Joe Nitti's purple highboy inspired many more during Korean War. Note light bar.

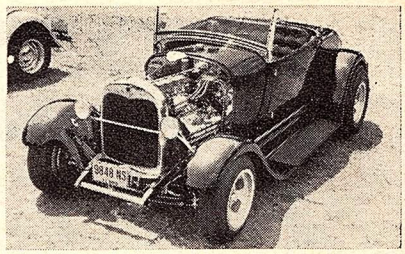
of documentation as to why automobiles, like topless dancers, were a sinful aberration, which if necessary at all, must not titillate or provoke. What started as constructive criticism of the American automobile has escalated to the point where Detroit will face a crisis of survival in 1975. The next thing we expect is to see all new cars fitted with belly pans, so that if a driver runs over a pedestrian and then backs up to see what he's hit, he'll mangle him only once.

In Detroit's frantic efforts to win the enthusiast's dollar and loyalty, technology rendered much hot rod-building obsolete. Ride, comfort, performance and identity at $110 per month was very attractive indeed to the computer-bred 'teens of yesterdecade.

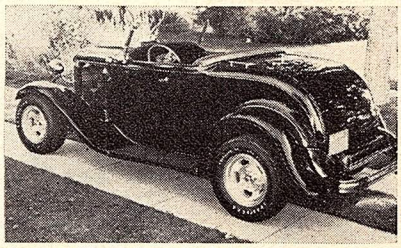
It's perhaps a paradox that the events and technology of the 'sixties have brought us back full circle. Today the street scene represents all the best that forty years of rodding and Detroit technology have to offer, and those forty memorable years are summed up by taking a cruise or a fast pass in a roadster.

King Roadster: «OLD vs. NEW»

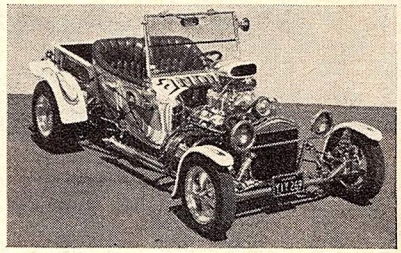
Today's street roadster might utilize a carefully assembled cross-leaf suspension, or perhaps a fully engineered Jaguar layout. Powerplants range from built Cragar Bs and healthy 24-stud flatmotors, to tunnel-ram Rats and Hemis. The run is the fun and the emphasis is on comfort for the cruise, reliability for the Nationals, durability for the most fun with the least hassle, and craftsmanship for pride of ownership. Swap meets are teeming with old-timey parts, modern stuff, good tin, chassis parts, wheels, tires, frames and plenty of anxious buyers to snatch it up. Scores of retail outlets and professional shops can provide a wealth of new and reproduction antique parts, and the necessary know-how to solve your particular building dilemma. Looks like we roadster types are the final winners, after all. We've never had it so good. ■■



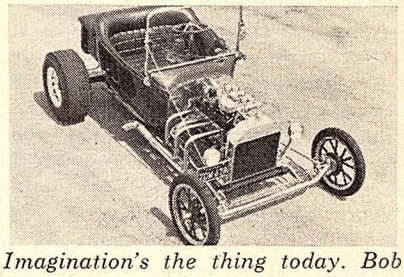
This beautiful '29, built by Jeffries in '56, showed up at Memphis Nats. '71. DeSoto-powered, it was entry 1001.



Jerry Kugel's 1932 "Jaguar" shows today's trend: Restored sheet metal, XKE running gear front and rear.

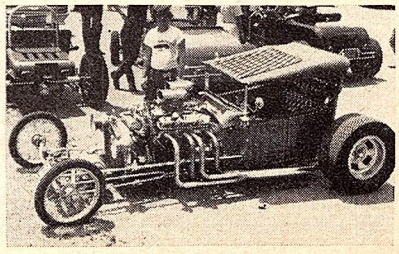


Wilder side of things is Andy Brizio's '70 Oakland winner. "Instant T" flagship had fantastic Himsl paint job.



Imagination's the thing today. Bob Hines' T-bucket sports Riley OHV T conversion, Weber carbs and T-10.

Tom Patton carries the traditional look right into the seventies with his blown flatty-powered '34 roadster.



Evolution! Don Kendall's no traditionalist. Healthy Ramcharger-powered 'glass 'T' logs thousands of miles. ▶

Street Rod Nationals

Going into its third year, the "Nats" has become the "Mecca" for street rodders. This year's meet will be sponsored by good ol' HRM and held in the good ol' car capital, Detroit.

The word is out! After many months of planning by some of the country's most dedicated and enthusiastic street rodders, Detroit, Michigan, has been chosen as the site of the 1972 Street Rod Nationals. And, the new sponsor is none other than *Hot Rod* Magazine. Although this will only be the third annual assembly of the "Street Is Neat" ranks, the event is already one of the most exciting events on the automotive calendar — and now that *Hot Rod* is sponsoring the event, the '72 meet is assured of being the most outstanding yet.

Last year's Street Rod Nationals, or the "Nats" as they are known as, saw over 1200 pre-1948 street rod entries converge on Memphis. Polished brass radiators, glistening chrome and flawless paint formed an endless parade that dazzled both the contestants and the spectators. The number of entries for the '72 Nats is expected to top the 2000 mark, which will make it the world's largest (and greatest) car show.

HOT ROD

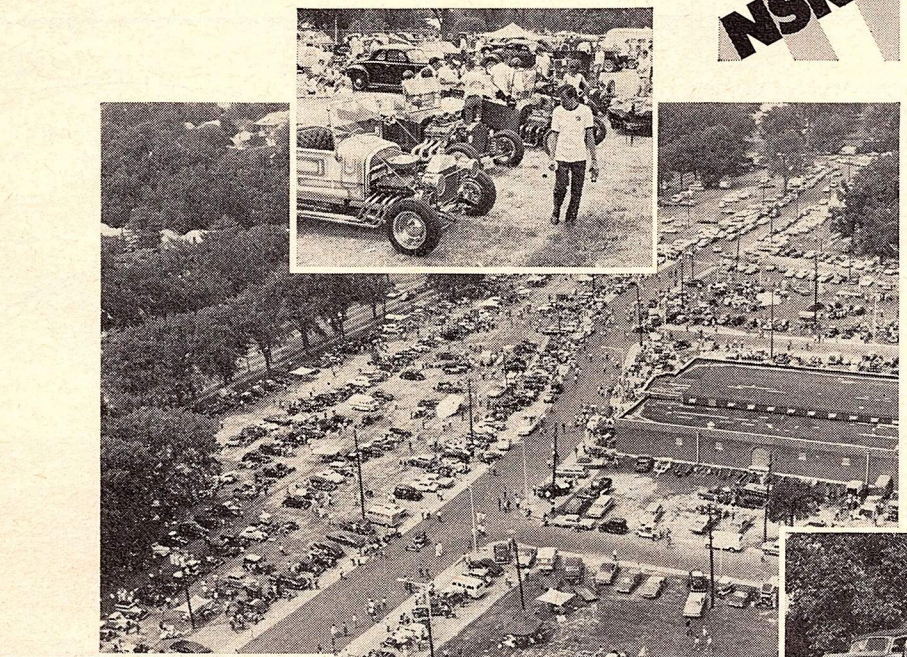
STREET ROD NATIONALS
JULY 13, 14, 15, & 16
DETROIT, MICHIGAN

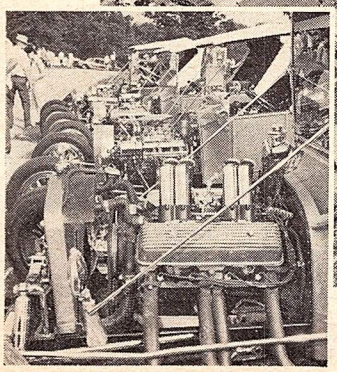
NSRA

But the Street Rod Nationals is much more than just a car show. Countless activities keep the rodders jumping all day (and all night) long. Last year, the Streetkhana provided loads of laughs, as well as some tips on how to make your rod handle. The Show 'n Shine afforded an opportunity for everyone to see the latest trends in early iron. Night-time entertainment kept all the folks swingin' till the early hours. If you think that sounds like wall-to-wall fun, try some of these new additions on for size: How about a Go-Whoa competition, or a swap meet lasting through the weekend? If you heard that the Greased Pig Contest from last year was fun, you won't believe what's in store for you now. There will be an all-new Varmint Award and an overland chase for cars. Since everything will be taking place in the automotive capital of the world, there will naturally be scheduled tours of the automotive assembly plants (which is a must).

The 1972 Street Rod Nationals will be held during the weekend of July 13 through 16 at the Michigan State Fairgrounds in Detroit. The event is sanctioned exclusively by the National Street Rod Association and sponsored by *Hot Rod* Magazine. Many manufacturers of automotive equipment are co-sponsoring the event by providing special awards to the winners of the various activities. Entry forms (and corresponding participant numbers) are now available on a first-come first-served basis.

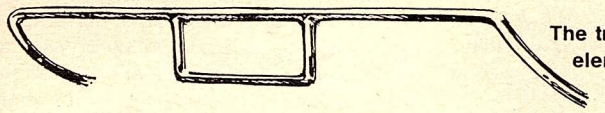
Requests for entries or additional information should be sent to Hot Rod Magazine Street Rod Nationals, 8490 Sunset Boulevard, Los Angeles, California 90069. And best get a move on — there'll be lots of us out there. ■■





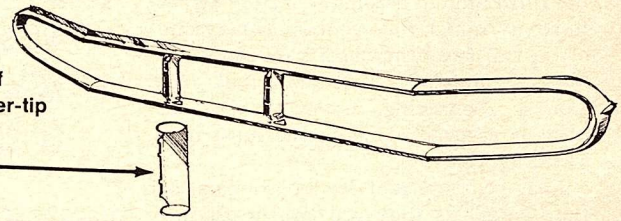
A TOUCH OF TOM

Here's a selection of futuristic street rod styling ideas . . . that you can start on right now

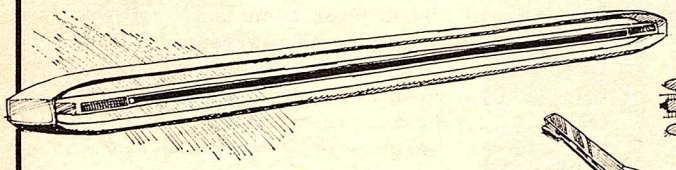


The tried and true nerf bar looks good on a cleanly designed rod. All upright elements are round tube, while the horizontal bars are oval tubing. Careful welding and finishing of joints will provide a neat, traditional bar.

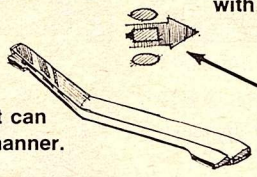
For something more up-to-date, this contemporary design is made of streamlined aircraft tubing. Note delicate peaks at outer ends of the nerf bar. Uprights parts are tube plus late-'60s Continental (not Mark III) fender-tip reflectors, bezels and lenses.



Cross section of upright

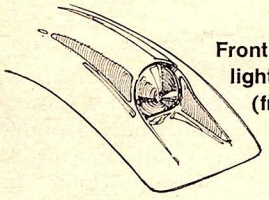


For an advanced-looking nerf bar, streamlined aircraft tube is formed into an oval. "Floating" within is a bar of solid stock faced with protective rubber. Reflectors ('72 Olds 98) are placed at each outer end of floating bar.



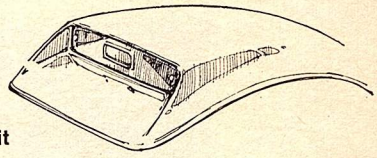
Contour across front can be handled in this manner.

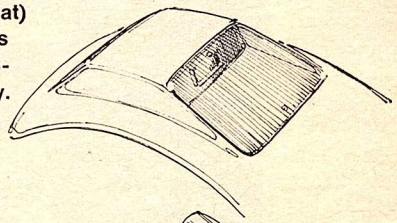
Cross section: Middle bar springs in upon impact.

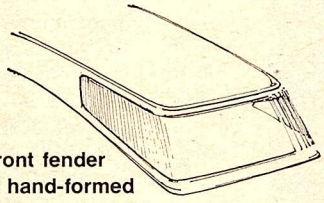


Front fender with traditional molded parking light. Here a bobbed late-model round unit (from many makes) is partially tunneled.

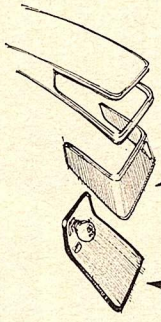
A contemporary look for front fenders comes by molding a '71 or '72 Charger parking light unit into sheet metal. This unique variation adds a second light unit (visible from the driver's seat) with plexiglass overlay. This latter detail is similar to '58-'60 Corvette taillight overlay.





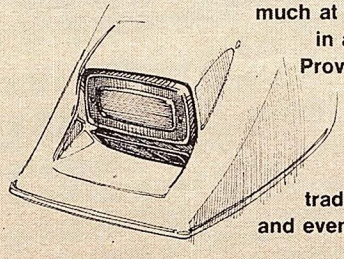


A more ambitious front fender light setup shows a hand-formed plexi lens set into a wraparound opening and held in place by a simple housing. This provides side marker lighting and goes with 'T' or 'A' fenders.

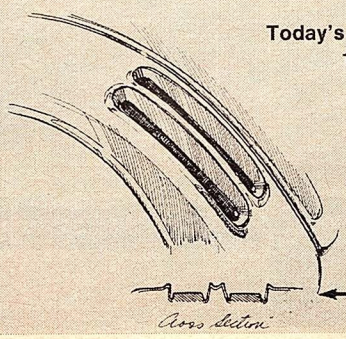


Form plexiglass lens over a wooden block in boiling water.

Rubber gasket, bent aluminum reflector and bulb socket.

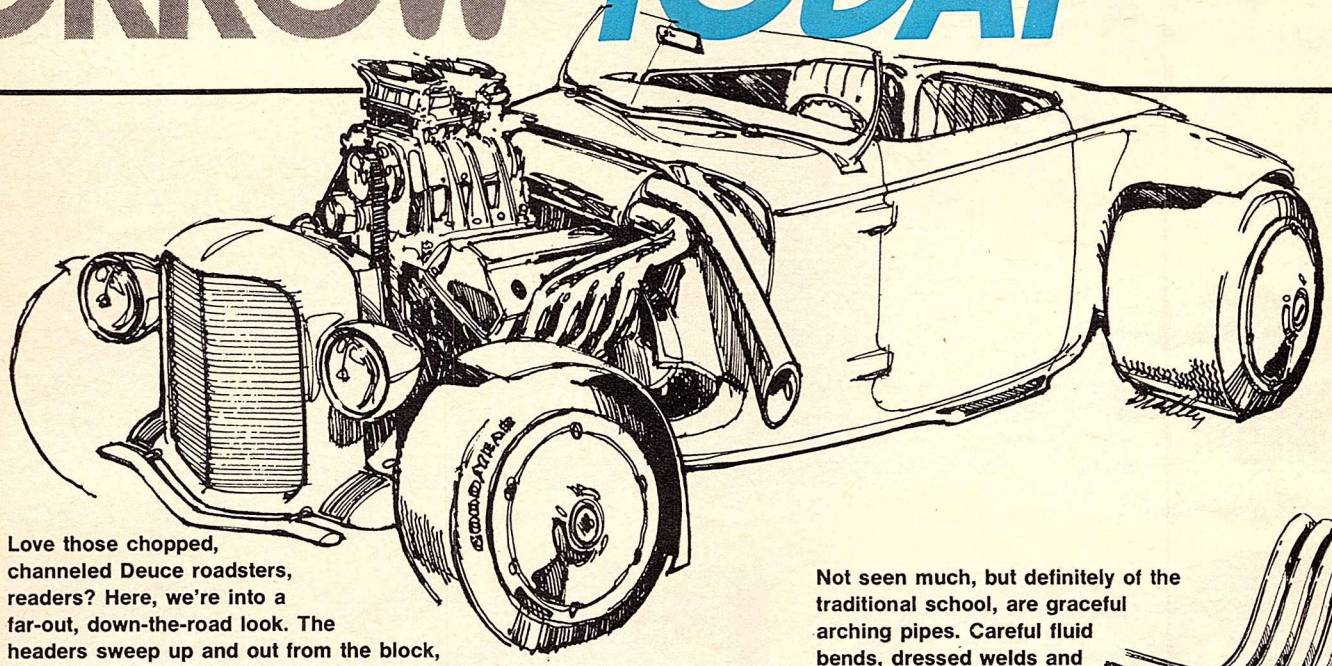


This Vega taillight looks very much at home when tunneled in an older-style fender. Provision for side marker lighting is incorporated. Design of this taillight makes it easily adaptable to traditional, contemporary and even modern street rods.

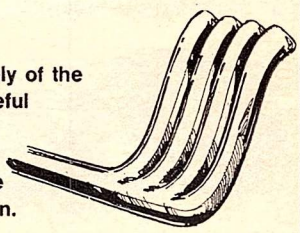


Today's look comes on strong with 1968 Olds F-85, '67 Pontiac Safari, '68-'69 Tempest, etc., taillights placed in pairs. Each is countersunk by means of flared openings. Many of these lamps have backup lights.

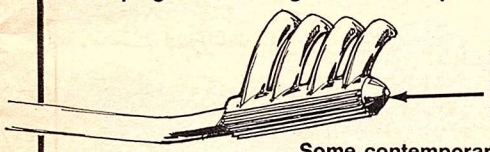
ORROW TODAY



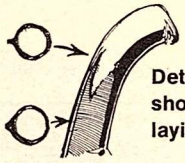
Love those chopped, channeled Deuce roadsters, readers? Here, we're into a far-out, down-the-road look. The headers sweep up and out from the block, climbing high into a late-model Riviera lateral muffler. Tailpipes dump out of this muffler and down along cowl via a flared pipe. This design confines all power elements to the engine compartment, keeping undercarriage and rocker panels uncluttered.



Not seen much, but definitely of the traditional school, are graceful arching pipes. Careful fluid bends, dressed welds and balanced proportions create this beautiful, flowing design.

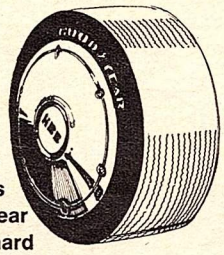


Head removes to replace the motorcycle muffler.

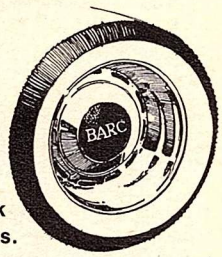


Detail of header pipe sculpturing shows how the ridge is built up from laying on a fillet weld.

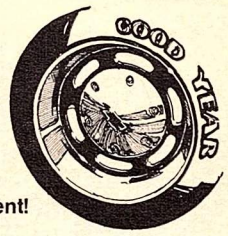
Some contemporary styling gimmicks for a mod look would include sculptured headers gracefully arching into an encased muffler, updated with fins, that leads into a smooth, but simple, tailpipe.



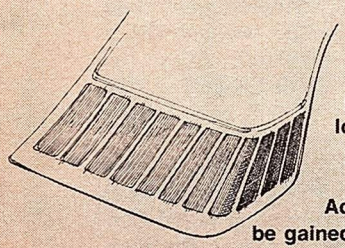
Tomorrow's look will come in part from new tires—we don't have those today, but new ideas can be tried. Goodyear Y-6s (not good for hard street use) are mounted on wide rims. A large disc is bolted to the rim by Allen screws. Disc can be spun or assembled from large discs, wheel covers, spare wheel shrouds, etc. Initials add final touch.



The traditional look in footwear: a full-size whitewall tire, deep-dish chromed wheel rim, Toronado or European wheel center with matte black insert. Initials add class.

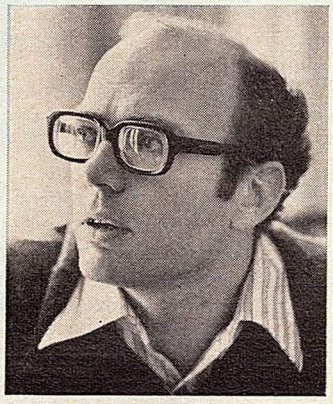


Big Polyglas blackwall on slot-type mag that has the body color added around the cutouts. Vega hubcap is retained by black Allen screws—different!



This unit is all handmade—but it isn't difficult. A wraparound lens is positioned behind the louvered opening. Can you picture a '34 rear fender in this setup? Additional "points" can be gained by using red, amber and white plexiglass for stoplight, taillight and backup light functions.

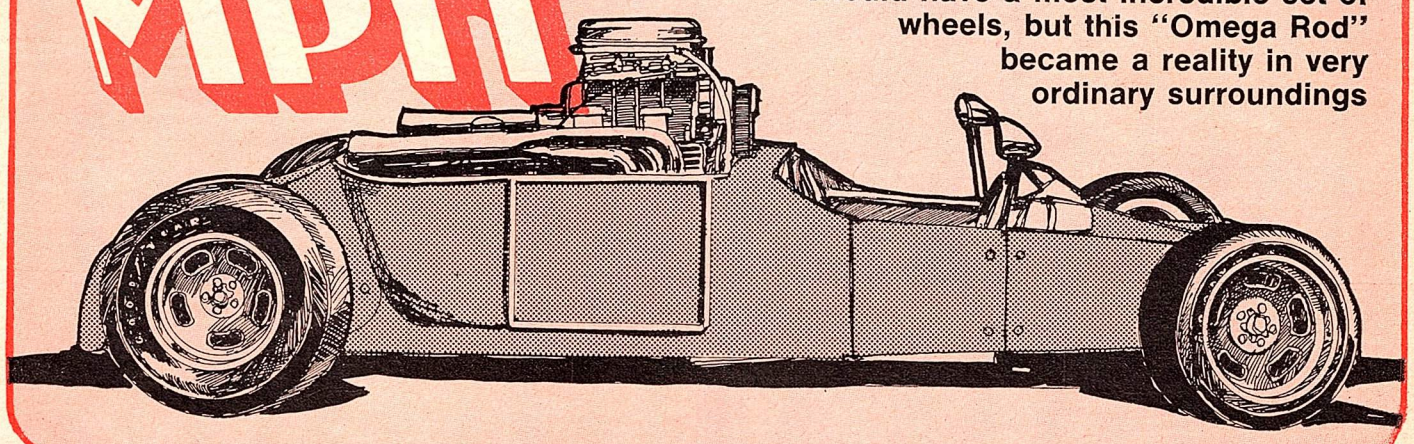
The Illustrator . . . HARRY BRADLEY



● Harry Bradley's "thing" is designing and styling. From model cars to Detroit's Real McCoys, and almost anything in between, Harry's design touches are on many automotive products around us today. He has worked for GM, Ford and Chrysler, but prefers to be on his own so he can offer his ideas wherever he feels they're needed. Despite most of his designs being new-car- or new-product-oriented, Harry's first love and long-time avid interests belong to hot rodding. That is why we decided to have one of America's foremost stylists lend his talents to our street rod issue by presenting some ideas that we think you'll find most interesting. Take a look and see if they don't stir up something in your imagination. They do in ours. ■■

200 MPH STREET ROADSTER

It seems fitting that the publicist for the National Street Rod Association should have a most incredible set of wheels, but this "Omega Rod" became a reality in very ordinary surroundings



by TOM SENTER

photography: Bill Temesy and Jon Asher

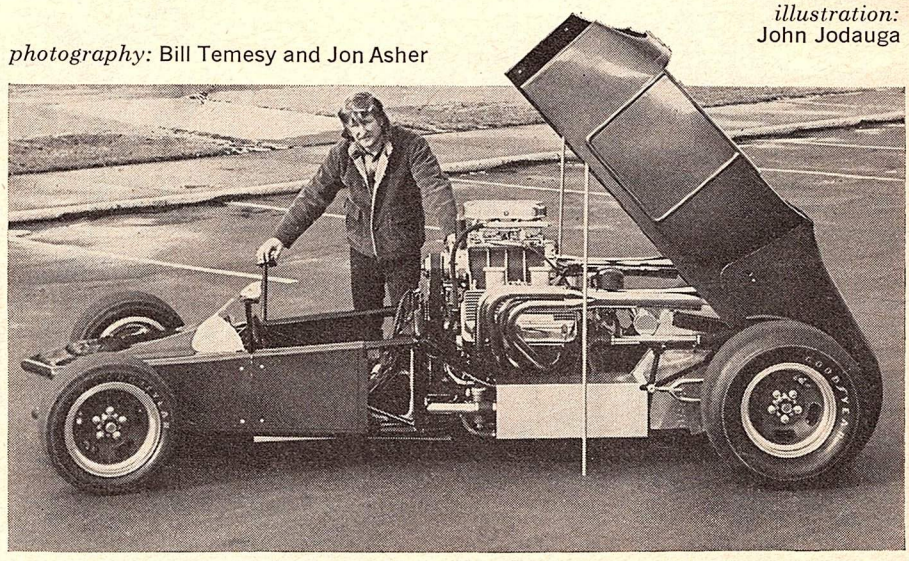
illustration: John Jodauga

How'd you like to make a furious 160-mph pass down the Illinois turnpike in a mid-engine, blown-Chrysler-powered machine and still have 40 mph left under your right boot! Sound like a great way to spend a Saturday night?

No, it's not a Can-Am or a Funny Car, nor is it one of the new rear-motor diggers. It's a *street roadster,* hide-boiler fans — a simple, ridiculously fast, completely homebuilt street roadster, engineered for the boulevard, with a potential top speed of over 200 mph!

Builder Cotton Werksman, often referred to as the Madman from Barrington (Illinois), is a very unusual street rodder. Using as collateral an extensive hot rodding background studded with many flathead- and Ardun-powered rods of all types, Cotton started with a clean sheet of paper to answer, once and for all, the lofty question of just what the *ultimate* street roadster should be.

What started as a harmless (although exciting) bench session, with wild speculation as to how the local troops and *federales* would react to a street-bound version of the old Tucson Speed Sport Roadster, suddenly became a reality at the talented hands of Mr. Imagination. Not only were jaw-dropping goals and concepts (guaranteed to daze, amaze and stupify) laid down, but such cold realities as limited available funds would establish this project as an ambitious undertaking indeed.



Cotton Werksman's Werk of art reflects Can-Am influence. The compact package features a rear-mounted radiator, a trio of gas tanks and even room for a passenger.

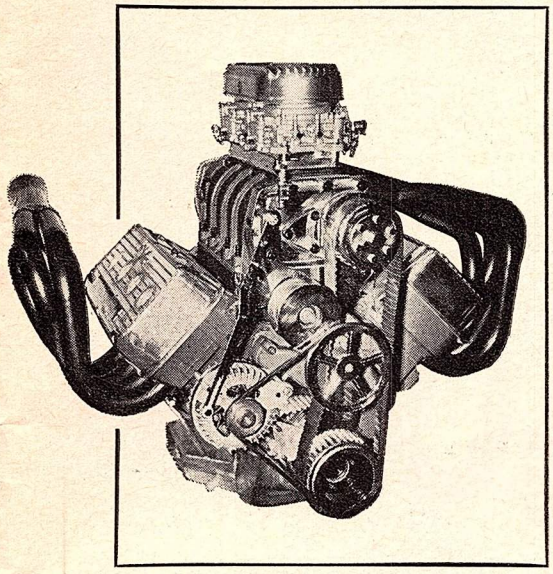
Werksman is a stubborn perfectionist and an automotive craftsman, duly armed with the conviction that no one could build the car exactly as he wanted it — nor would he want anyone to try. The 2000-pound, two-seat rocket sled would materialize within the confines of his modest, one-stall home workshop. It would develop from the carefully engineered space-frame to the fully independent suspension to the blown 392-inch Chrysler hemi.

Fully detailed plans were cut before a tool was lifted. The mild-steel tubing frame was assembled with an ingenious set of plywood jigs and bulkheads, firmly braced and anchored to a rigid wooden platform and gas-welded with a 3/32-inch, 60,000 psi rod. After the entire frame was welded together, the bulkheads were knocked out with a hammer.

The independent suspension is comprised of modified VW trailing arms at the front and a combination of '68 Corvette and homebuilt parts at the rear. The '65 'Vette vented-rotor disc brakes on all corners provide the much-needed

drag when asked. We'll run the risk of repetition with a reminder that the entire frame design, suspension geometry, brake adaptation, and placement of all brackets and controls were noodled out on the kitchen table and executed in the garage with tools found in most home shops.

During the conception of the car over coffee and fries, the words "blown Chrysler" crackled through the air with such urgency that it was a foregone conclusion that the entire project would be designed around an all-out, supercharged, gas-burning, first-generation Chrysler Hemi. The most critical component, one upon which the entire mid-engine concept depended, is the ultra-short Torqueflite transmission. B&M Automotive put years of development experience on the line and produced a trans that is incredibly compact and yet capable of harnessing the 800-horsepower output of the Chizler. Cotton has remarked more than once that without this unit the car could never have been undertaken, much less built.



ABOVE — Healthy 400-inch Chrysler was built to last. Caddy water pump cools it. Mufflers live in Bassett headers.

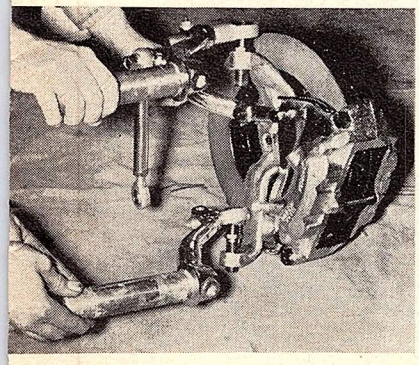
Nothing frightens this guy Werksman; no job is too big or beyond his reach — and that includes tasks he's never tackled before. When the time came to build a very healthy engine, as wild as the rest of the machine, he looked no farther than his own shoes. Even the custom steel main caps were fabricated by Cotton, with the help of an available milling machine. Patience, careful planning and proper selection of components resulted in a powerplant of tremendous potential, yet one well-mannered enough to fire on the starter and discipline itself in traffic.

For assembly, the engine and transmission are bolted together as a complete power module on the floor; the space-frame is dropped over the unit and bolted to the engine/trans mounts. The entire chassis is then elevated, whereupon the wheels are mated to their respective corners — just a regular deal.

The choice of all chassis components was based on Cotton's practice of choosing the simplest, yet most efficient, available factory parts and augmenting these with modifications and hand-fabricated pieces where necessary. The result is a very well engineered, yet inexpensive, assembly that looks so simple that one wonders whether there are pieces missing . . . until Cotton lights the rig off for a quick trip to the speed shop or supermarket.

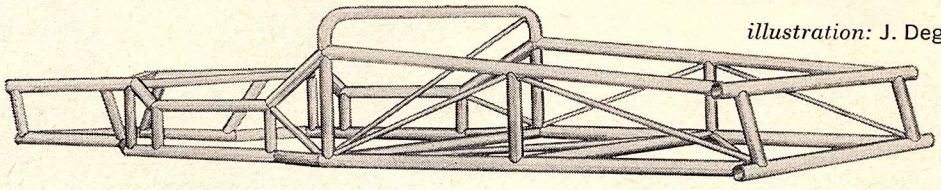
The '27 glass 'T' body was widened at the cowl to allow double occupancy and augmented with simple sheet metal panels at the front. The full belly pan also serves as the floorboards. Headlights are fitted within the grille cavity, and the tall mirrors provide a measure of vision to the rear. A full complement of instruments are a blink away from the unobstructed field of vision.

The results are mind-bending, as you can see. It just goes to show you that when a fellow like Cotton Werksman sets out to do something, he does it. (But the 160-mph freeway passes are not recommended unless you're very close to a good attorney!) ■■

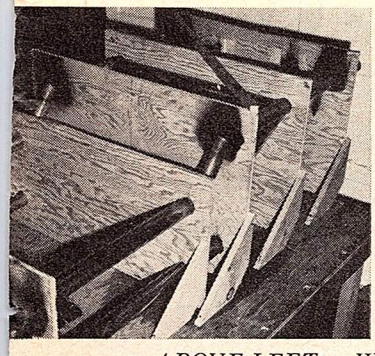


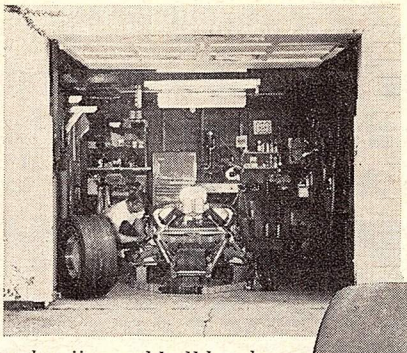
LEFT — Inverted 'Vette spindle mounts to VW trailing arms with custom Heim ends. Arms are swapped top for bottom. VW torsion bars are used.

illustration: J. Degan

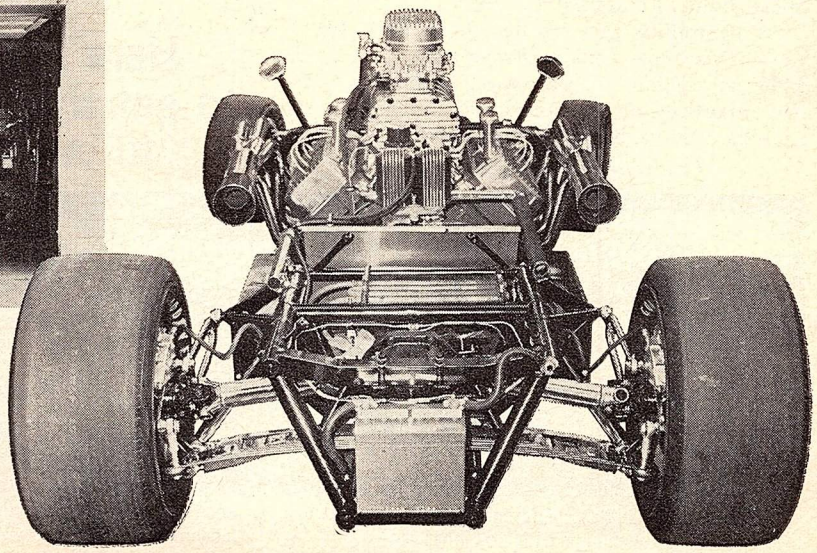


ABOVE — Frame is simple, well-braced and light. All tubes were fish-mounted via wooden pattern to ensure maximum strength. BELOW — 'Vette rear suspension is augmented with stronger radius rods and longer spring hangers to allow more travel.

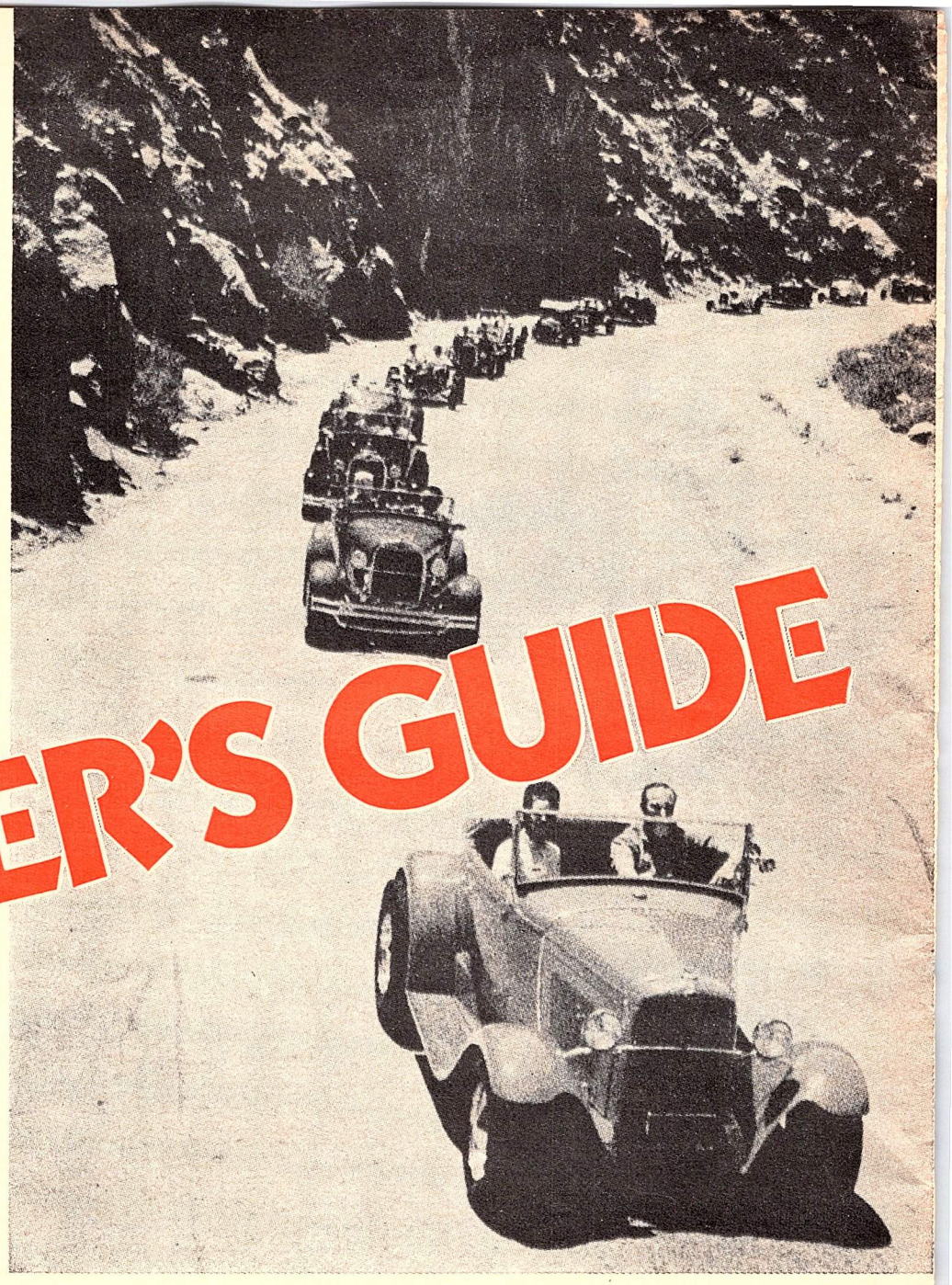




ABOVE LEFT — Wooden jigs and bulkheads accurately place each tube; platform must be rigid. Welding is carried out in random pattern to avoid twisting and warpage. Transmission couples to third member sans a drive shaft. ABOVE RIGHT — We can hear you now: "Yeah, but you gotta have a bunch of bucks and a great big shop to build this." Not so! It depends on how much you want that rod.



STREET ROADSTER BUYER'S GUIDE



by BUD BRYAN

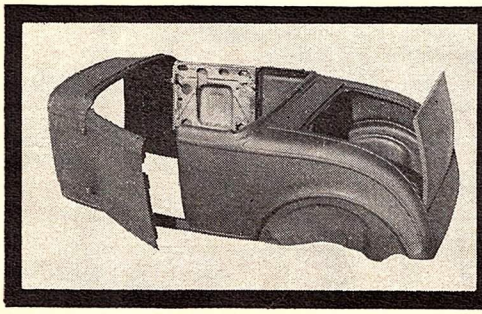
Here's the straight dope on where to get the goodies. A listing guaranteed to cut your building time in half

With this listing, we're presenting to you the ultimate in street roadster equipment directories. It is directed toward the novice builder who is unfamiliar with the roads to reliable parts sources. He will find that we have done the screening for him and have included only those specialty outlets which are *known* for their dependability and quality service.

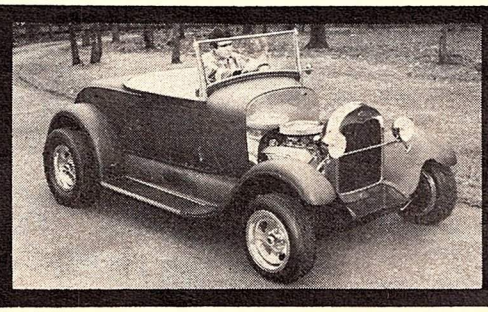
There is some source overlap, so some cross-reference work is required before you seat yourself and request, in letter form, information and literature on those items of interest to you.

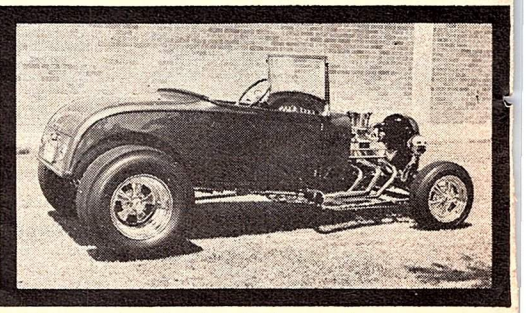
In compiling this listing, these key factors were also considered: Is the supplier expeditious in processing orders? Are quantities of advertised and catalog merchandise on hand? Is product famil-

(Continued on page 46)

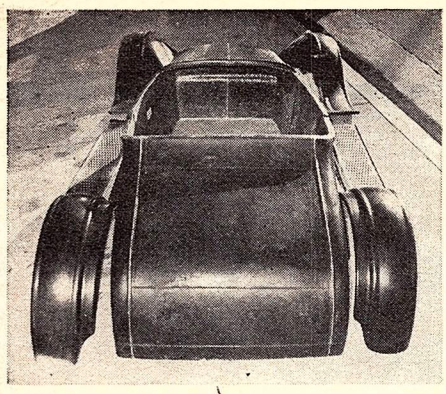


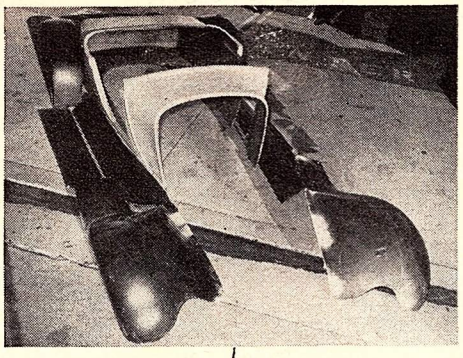
Contemporary Fiberglass replacement '32 Ford roadster body is hand-laminated; all inner panels and flooring available with body, separately.

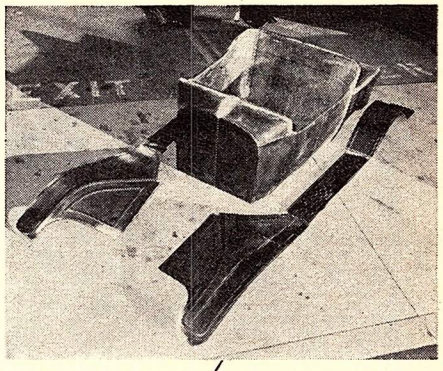


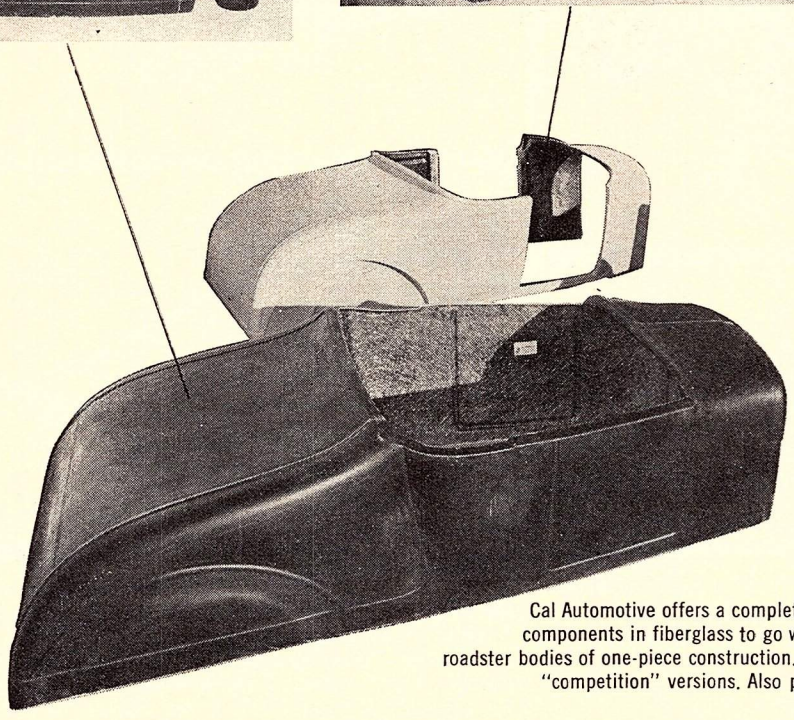


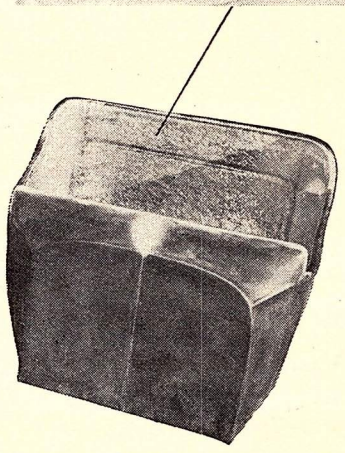
Shown to illustrate versatility possible with all Cal Automotive fiberglass bodies are these fendered and fenderless versions of the Model A. Doors function factory-like when replacement or original latch mechanisms are used and supplementary bracing is provided.











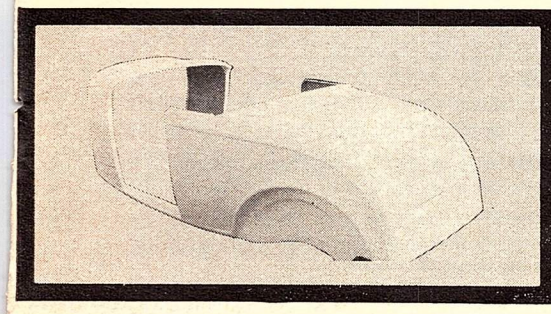
Cal Automotive offers a complete line of accessories, body components in fiberglass to go with '23-'27 'T' and '28-'29 roadster bodies of one-piece construction. Can be ordered in heavier "competition" versions. Also pre-cut, wooded doors, etc.

Andy's Instant T's **
Specialty: Custom 'glass bodies and 'glassing
1685 Old Mission Rd., S. San Francisco, Cal. 94080
B&G Fiberglass *
Specialty: Manufacture '32 Roadster and all body components for same
713 Grace St., Elgin, Ill. 60120
Cal Automotive **
Specialties: Manufacture '23 through '27 'T' Roadsters, '28-'29 Roadster and all body components ('T' tourings available)
8044 Lankershim Blvd., North Hollywood, Cal. 91605

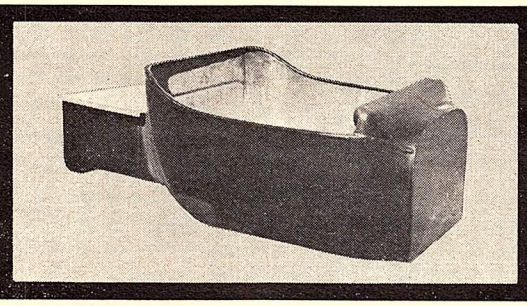
FIBERGLASS BODIES

Contemporary Chassis Design
Specialty: Made-to-order '23-5 T-bucket bodies and 'glassing
15506 Vermont Avenue, Paramount, Cal. 90723
Contemporary Fiberglas *
Specialty: Manufacture '32 Roadster and all body components for same
13665 Foothill Blvd., Fontana, Cal. 92335
Fibercraft
Specialty: Manufacture '23 T-buckets
1542 W. 143rd St., Gardena, Cal. 90249

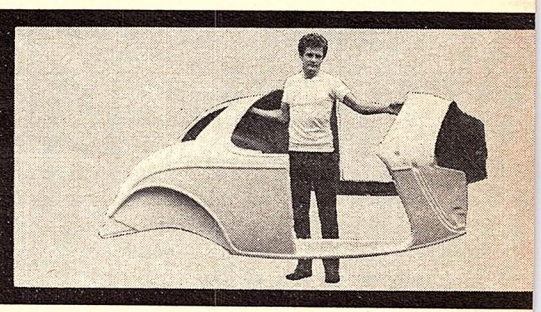
J. E. Fiberglass
Specialty: Manufacture '23-'25 T-bucket
13904 Saticoy, Van Nuys, Cal. 91402
P.S.I. Industries **
Specialties: Supply Fiberglass '23 through '27 'T' Roadsters, '28-'29 Roadster and all body components ('T' tourings available)
9103 E. Garvey, Rosemead, Cal. 91770
Roadster Reproductions **
Specialty: Manufacture fiberglass '34 Roadster and all body components for same
3450 Richmond Rd., Victoria, B. C., Canada
(Continued on following page)



B&G Fiberglass '32 Ford roadster body is of hand-laminated construction; all inner panels, flooring, doors, deck lid, with body or separate.

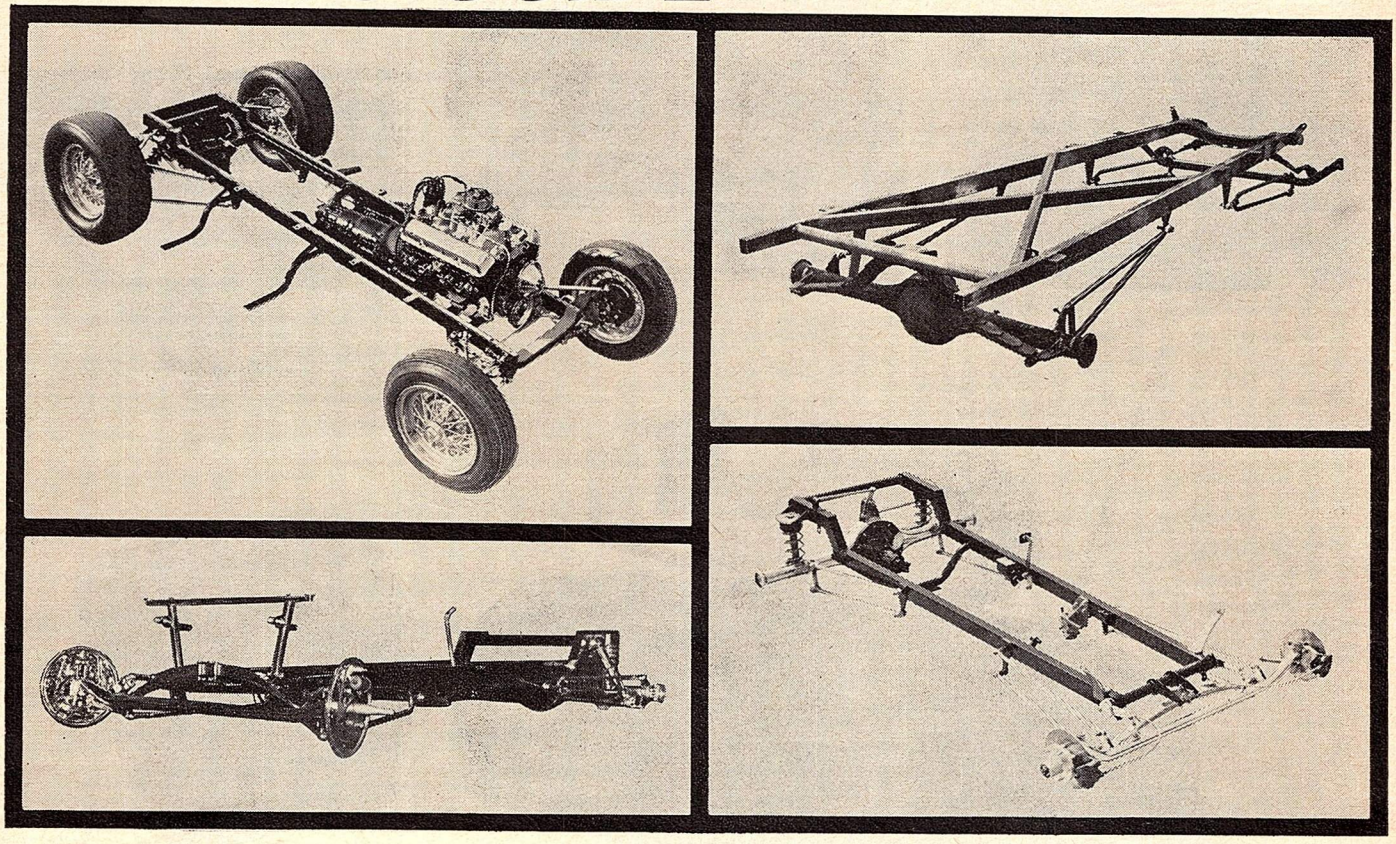


The universal favorite: T-bucket. Comes in one- or two-piece versions (bed separate) in years from '23-'25. Many local speed shops supply.



Roadster Reproductions offers superb '34 roadster body complete or in pieces. Uses stock specifications and is of hand-lay-up construction.

BUYER'S GUIDE



TOP: J&J Chassis & Body Works specializes in the currently popular independent suspensions utilizing both made-up and existing Jaguar components. Components or complete frames (such as this one for a '27 'T' touring) have proven to be popular and reliable. Standard-leaf or coil-suspended I-beam setups are offered also, plus steering swaps. ABOVE: Andy's Instant T's offer scratch-built Instant T chassis and components plus most P.S.I. items. "Drive-home" kit cars are available on request; wiring, detailed bodies, upholstery, plating included to purchaser's specifications at his expense. Andy's can also supply Bell tube axles. Peek Brothers' Chassis is offering this replacement stock-spec Model A frame for all years ('28-'31) which accepts stock body and all related components of fiberglass or steel. Frame is shipped complete or in individual component form; available direct from the manufacturer or West Coast distributor: Kugel Komponents. The workmanship is of the highest quality. P.S.I.'s one-stop shopping facility makes possible the sale of complete chassis or individual parts for same. Suspension is leaf/torsion bar up front, coil-over shock rear. Of special interest is P.S.I. disc brake, aluminum hub assembly. Bare frame is available and the price is reasonable.

iarity and market awareness of *demand* items what it should be? And above all, does the supplier have a practical knowledge of problems facing customers in the field?

To put it in far simpler terms, the building of a quality, short-term street iron (specifically a roadster) can be achieved by doing business with the manufacturers and suppliers you find here. An asterisk indicates literature and catalogs available; a double asterisk indicates suppliers who specialize in mail order and have large supplies of various items for "one-stop" buying.

One final note: Many of the T-bucket frames and fiberglass bodies to match what you see here, plus most of the individual fiberglass components (fenders, radiator shells, etc.) and some of the specialized hardware needed (windshield posts, windshields, headlights, taillights, etc.), are obtained from local speed equipment dealers. Check the one closest to you — save time and shipping costs. ■■

FRAMES

Andy's Instant T's **
Specialty: Manufacture custom T-bucket frames and drive-away or partial-built kit cars
1685 Old Mission Rd., S. San Francisco Cal. 94080

Ted Brown Chassis *
Specialty: Manufacture custom T-bucket frames and all components
17452 Clark Ave., Bellflower, Cal. 90706

Cal Automotive
Specialty: Manufacture custom T-bucket frames
8044 Lankershim Blvd., North Hollywood, Cal. 91605

Contemporary Chassis Design
Specialty: Design and manufacture chassis (old and new), assembly work and custom fabrication
15506 Vermont Ave., Paramount, Cal. 90723

Kent Fuller Manufacturing
Specialty: Design and manufacture chassis (old and new), fabrication work
19031-A Parthenia Ave., Northridge, Cal. 91324

Hamilton Automotive
Specialty: Manufacture complete kit cars and all components
7762 Gloria Ave., Van Nuys, Cal. 91406

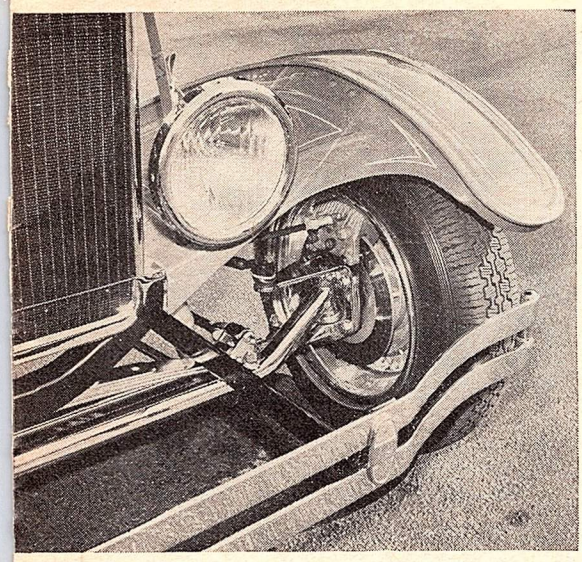
J&J Chassis & Body Works *
Specialties: Manufacture custom frames for 'T,' 'A,' '32 and later, Independent suspension, fabrication/design and special component manufacturing
16307½ Piuma, Cerritos, Cal. 90701

Logghe Stamping *
Specialty: Manufacture custom 'T' frames and complete kit cars
16711 13 Mile Rd., Fraser, Mich. 48026

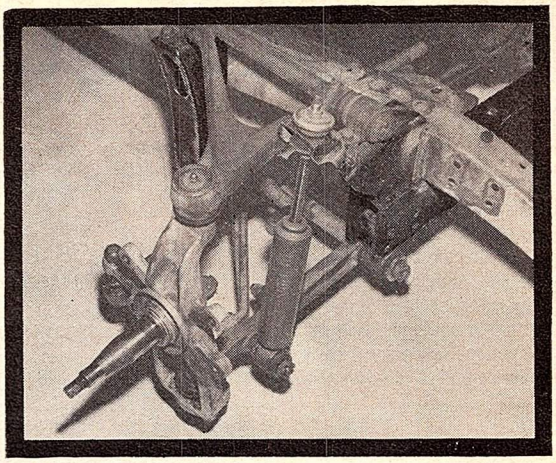
Peek Brothers Chassis *
Specialty: Manufacture stock-spec replacement Model A frame complete and hot rod running gear for same
1404 W. Davies Pl., Littleton, Colo. 80120

P.S.I. Industries **
Specialty: Manufacture complete kit car components and offer standard, aircraft fasteners
9103 E. Garvey Ave., Rosemead, Cal. 91770

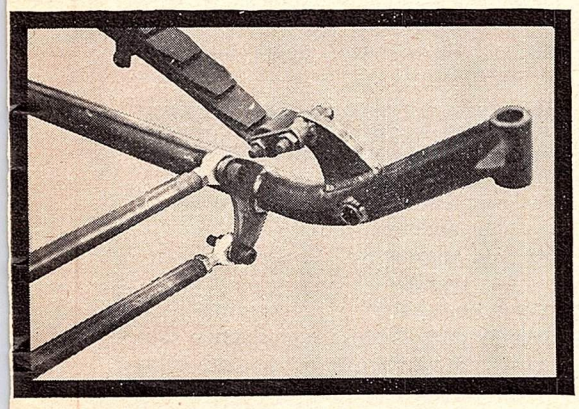
Roadster Accessories **
Specialty: Supply 'T' frames and all body



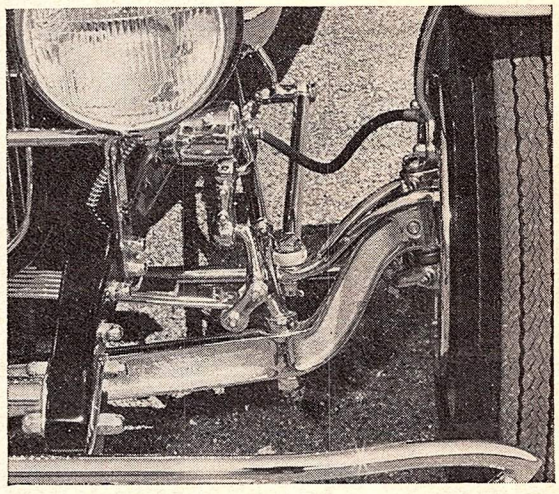
Hurst/Airheart Products are known for their quality, adaptability. H/A disc brake system can be utilized on Ford I-beam or dropped-tube assemblies (shown is a Ted Brown setup). Universal installation offers ultimate in stopping power; rears to match are available.



Kugel Komponents has found their Jaguar front suspension mounting kit for '32-'34 Ford frames to be rugged and ultimately more adjustable than similar offerings. Kit components are all pre-cut (flame) from heavy wall plate and tubing.



Mor-Drop Axles is supplying high-quality dropped early-Ford I-beam axles ('28-48) to second-generation hot rodders. Stock axles are exchanged for forge-dropped duplicates which in all other respects are stock. Plating not included.



Peek Brothers' Chassis makes available the finest in dropped-tube axles and hairpin wishbone assemblies. Stock pin bosses, wishbone hangers, spring perch and kingpin set screws not included. Plating not included.

components
P.O. Box 212, Urbana, Ohio 43078
Speed Products Engineering *
Specialty: Manufacture complete kit cars and all components
3307 W. Warner Ave., Santa Ana, Cal. 92704

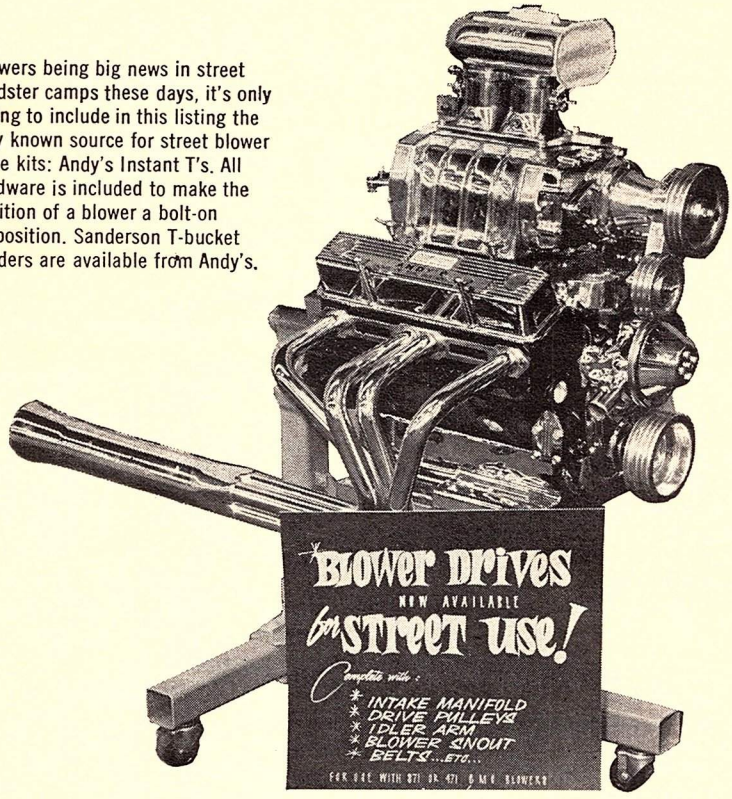
CHASSIS COMPONENTS

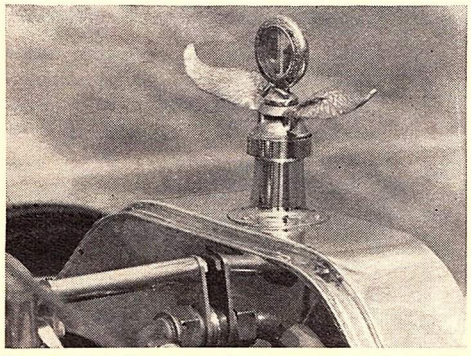
Andy's Instant T's **
Specialties: Manufacture kit car components, wheels, Chevy wheel/brake conversions for hot rods
1685 Old Mission Rd., S. San Francisco, Cal. 94080
Bird Automotive *
Specialty: Manufacture kit car components
P.O. Box 793, Fremont, Nebraska 68025
Ted Brown Chassis *
Specialty: Manufacture frame hardware, narrowed rear ends
17452 Clark Ave., Bellflower, Cal. 90706
CAE Racing Products *
Specialty: Manufacture sprint car equipment usable on street roadsters
4080 Market St., San Diego, Cal. 92045
Challenger Equipment *
Specialty: Manufacture & supply chassis components, tube axles/springs, fabrication work
687 E. Edna Pl., Covina, Cal. 91723
Components Limited
Specialties: Manufacture mirrors, Jaguar suspension mounting kits
6056 Lean Ave., San Jose, Cal. 95123
Contemporary Chassis Design
Specialties: Leaf/coil suspension, trouble-shooting
15506 Vermont Ave., Paramount, Cal. 90723
Kent Fuller Manufacturing
Specialties: Welding, fabrication, design, manufacturing
19031-A Parthenia Ave., Northridge, Cal. 91324
Halibrand Engineering *
Specialty: Manufacture quick-change rear ends
1506 W. 228th, Torrance, Cal. 90501
Hamilton Automotive
Specialty: Manufacture kit car components
7762 Gloria Ave., Van Nuys, Cal. 91406
Hurst/Airheart Products *
Specialty: Manufacture disc brakes and related components
12840 Bradley Ave., Sylmar, Cal. 91342
J&J Chassis & Body Works
Specialties: Manufacture suspension design (old and new), custom fabrication, trick 'Vette rear ends, steering/rear end swaps, hardware, fasteners
16307½ Piuma, Cerritos, Cal. 91701
Kretch's Automotive
Specialties: Refined early Ford suspension, hard-to-find parts
3527 W. 228th Pl., Torrance, Cal. 90505
Kugel Komponents
Specialties: Manufacture custom water pumps for 289, special Jaguar suspension installation kits for '32, assembly work, rack & pinion steering modifications
8056 Westman, Whittier, Cal. 90606
Logghe Stamping *
Specialty: Manufacture tube axles and springs
16711 13 Mile Rd., Fraser, Mich. 48026
MAS *
Specialties: Traction equipment, suspension, tube axles
2538 Hennepin Ave., Minneapolis, Minn. 55405
Mor-Drop Axles
Specialty: Forge-dropped, rebuilt I-beam axles
600 29th Ave., Oakland, Cal. 94601
Peek Brothers Chassis *
Specialty: Manufacture replacement Model A hot rod suspension, tube axles, wishbones, narrowed rear ends
1404 W. Davies Pl., Littleton, Colo. 80120
P.S.I. Industries **
Specialties: Manufacture springs, tube axles, special brackets, wishbones, hardware and fasteners, disc brake kits
9103 E. Garvey Ave., Rosemead, Cal. 91770
Roadster Accessories **
Specialty: Suspension components
P.O. Box 212, Urbana, Ohio 43078
Speed Products Engineering *

(Continued on following page)

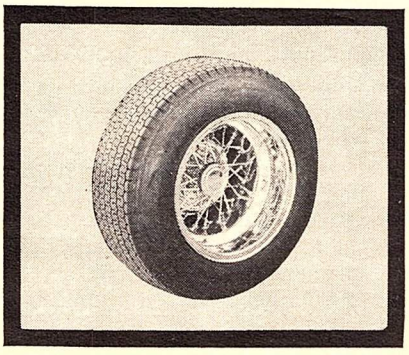
BUYER'S GUIDE

Blowers being big news in street roadster camps these days, it's only fitting to include in this listing the only known source for street blower drive kits: Andy's Instant T's. All hardware is included to make the addition of a blower a bolt-on proposition. Sanderson T-bucket headers are available from Andy's.

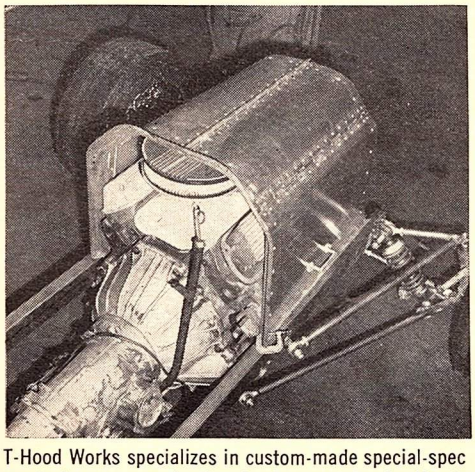




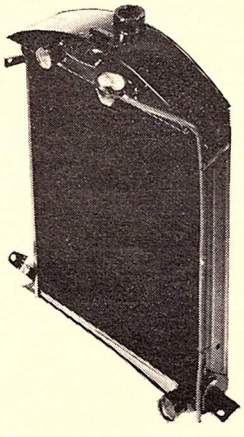
Reproduction brass or chrome motor meters with either wings or dogbones are supplied by the following: Antique Auto Parts, Specialized Auto Parts, Roadster Accessories, Ford Parts Obsolete, or sources listed.



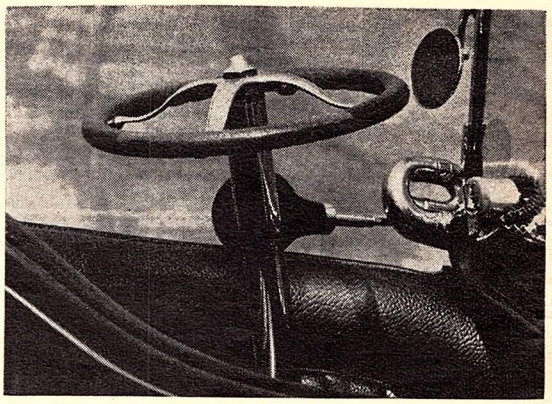
Borrani Wire Wheel Service Company can supply custom strung wires of the deep-dish variety on a mail-order basis. New wheels can be purchased, or old ones plated, restrung.



T-Hood Works specializes in custom-made special-spec or stock-spec reproduction fenders and hoods. Hoods are fabricated in aluminum, fenders are fabricated in steel; both are of the highest quality obtainable.



Walker Radiator Works specializes in mail-order street rod radiators. Most of the popular V8 powerplants can be equipped following special buyer specs as to outlet placement.



Antique Auto Parts, Roadster Accessories, both supply the popular wooden-rim/cast-aluminum spider steering wheels, which come in a variety of sizes and styles. Also supply mirrors, horns, etc.

Specialties: Manufacture tube axles, leaf/coil suspension
3307 W. Warner Ave., Santa Ana, Cal. 92704

GENERAL COMPONENTS

Andy's Instant T's **
Specialty: Manufacture blower drives, oil filter adapters, misc.
1685 Old Mission Rd., S. San Francisco, Cal. 94080

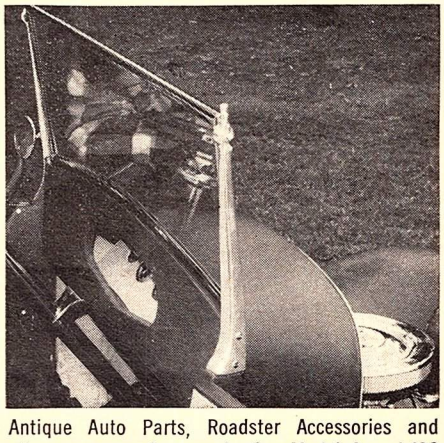
Antique Auto Parts
Specialty: Manufacture reproduction rubber products, wiring looms, complete line of street roadster components and early Ford parts
9107 E. Garvey, Rosemead, Cal. 91770

'A' Wood Kits *
Specialty: Manufacture Model A Ford roadster wood kits
4804 N. Seneca, Wichita, Kansas 67204

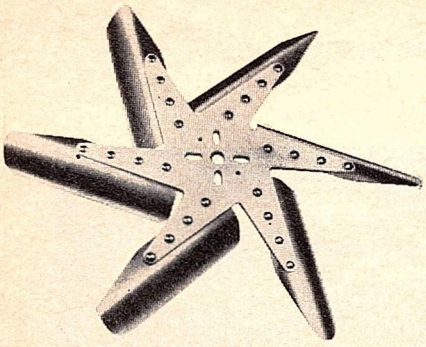
Jim Babb Radiators
Specialties: Brass radiators, custom brass fabricating, cooling equipment
8117 E. Compton Blvd., Paramount, Cal. 90723

Borrani Wire Wheels
Specialty: Widened/chromed (old and new) wire wheels
328 Lincoln Blvd., Venice, Cal. 90291

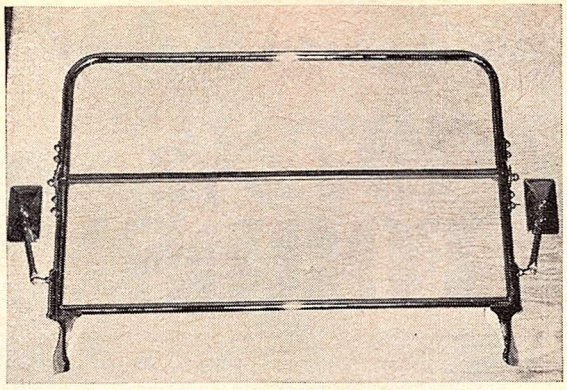
Flex-A-Lite *



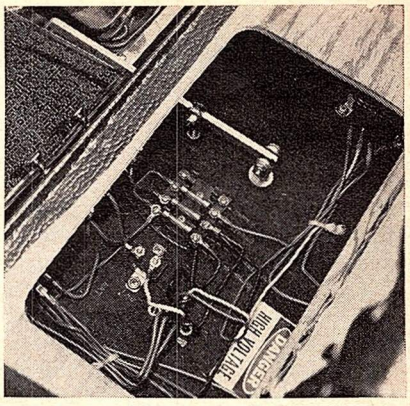
Antique Auto Parts, Roadster Accessories and others can supply reproduction Model A and '32 Ford roadster cast-aluminum windshield posts and related components as well as tubing frames.



Flex-A-Lite offers balanced, lightweight fiberglass fans for performance, space-conscious hot rodders. Two types are available, light- and heavy-duty; both can be trimmed to fit.



Windshield frames for all Model Ts are available from a number of sources, specifically those identified in listing with double asterisks. Some specialty manufacturers and most kit car suppliers offer them as well, along with numerous accessories — mirrors, etc.



Wiring supplies for all early vehicles can be had from a number of sources (Antique Auto Parts, Ted Brown, J&J Chassis, Honest Charley, etc.) or such wiring manufacturers as Belden, Cole-Hersee and several others.

Specialty: Manufacture fiberglass cooling fans, cooling equipment
5915 Lake Grove Ave., S.W., Tacoma, Wash. 98499

Ford Parts Obsolete **
Specialty: Complete line of early Ford reproduction items, some chassis components
1320 W. Willow, Long Beach, Cal. 90810

The Ford Parts Specialists **
Specialty: Mail order outlet for new early Ford parts
98-11 211th St., Long Island, New York 11429

Gilbert Metal Products
Specialty: Manufacture early brass headlights, antique-type components usable on street roadsters
10816 St. Louis Dr., El Monte, Cal. 91731

Honest Charley Speed Shop **
Specialty: Mail order outlet for all street roadster needs
108 Honest St., Chattanooga, Tenn. 37421

J&J Chassis & Body Works
Specialties: Custom wood work, wiring accessories, custom dashes
16307½ Piuma, Cerritos, Cal. 91701

Roadster Accessories **
Specialty: Complete line of reproduction roadster components
P.O. Box 212, Urbana, Ohio 43078

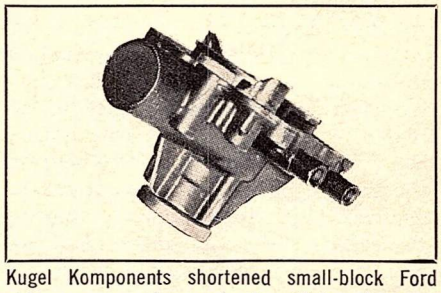
Specialized Auto Parts **
Specialty: Mail order outlet dealing in new, old and reproduction components
301 Adams, Houston, Texas 77011

Street Rod Accessories
Specialty: Manufacture luggage racks
550 Sun Valley, Duncanville, Texas 75116

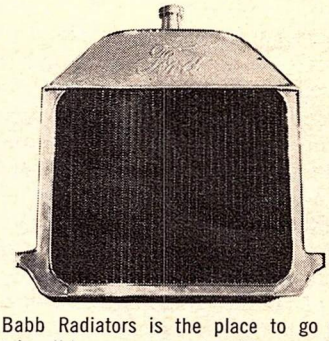
T-Hood Works
Specialty: Manufacture excellent stock-spec and altered reproduction aluminum hoods, widened fenders and aprons, etc.
2317 San Bernardo Creek Dr., Morro Bay, Cal. 93442

Walker Radiator Works *
Specialty: Manufacture street rod radiators, cooling equipment
694 Marshall, Memphis, Tennessee 38103

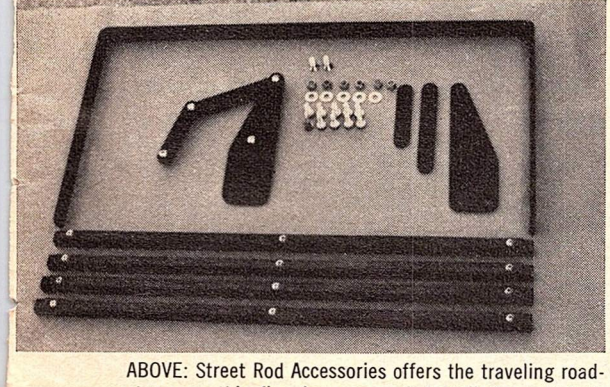
J.C. Whitney & Co **
Specialty: Mail order outlet for all street roadster needs
1917 Archer Ave., Chicago, Ill. 60616



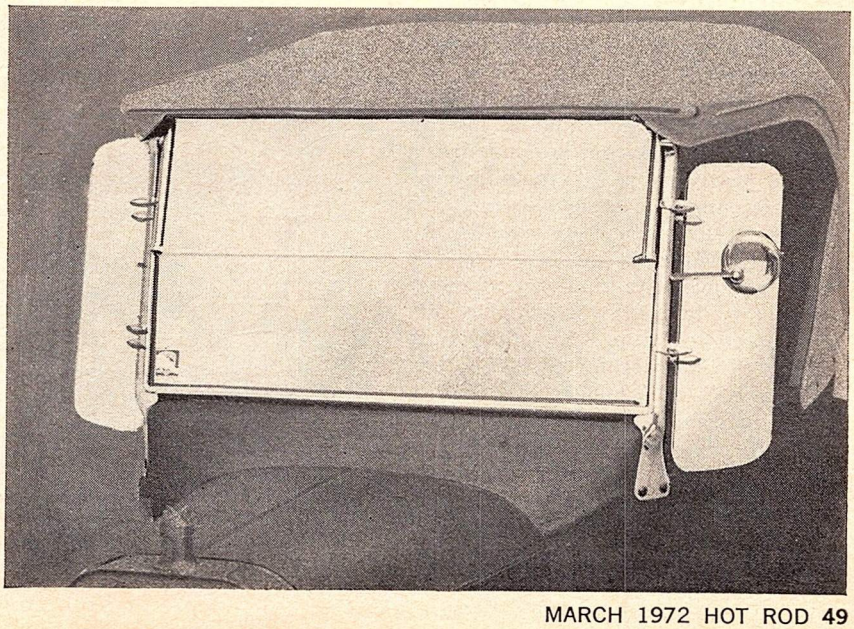
Kugel Komponents shortened small-block Ford water pumps solve engine-to-radiator clearance problems for early-Ford hot rodders. Inner seals aren't disturbed. Ordered outright, no exchange.



Jim Babb Radiators is the place to go for the finest in all-brass construction 'T'-type radiators. Brass radiators built to specs with normal, extra-capacity models offered, and built-in trans coolers.



ABOVE: Street Rod Accessories offers the traveling roadster man this fine luggage rack installation which is usable on both Model A and '32 Fords with full fenders. Available as a kit or pre-assembled, rack carries considerable loads and is a net dress-up accessory. The wind-wing look is in! 'T', 'A', and '32 roadster owners can get quality equipment from Antique Auto Parts or any of those in listing identified with double asterisks. Wind-wing hardware fits stock, reproduction (stamped or cast) roadster windshield posts.



Some midyear additions produce some welcome surprises

1972½ FORDS

By Steve Green ■ Ford recently held their midyear announcement and introduced a Pinto station wagon, engineering changes for the Pinto, a mini-pickup and a variety of trim packages for the Pinto, Maverick and the Mustang.

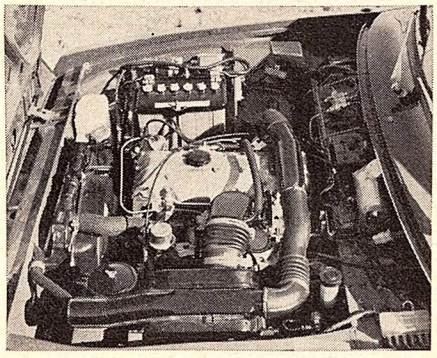
Standard equipment for the Pinto wagon includes the 2000cc four-cylinder OHC engine, four-speed transmission and front disc brakes. Also standard is a fold-down rear seat which permits 60 cubic feet of cargo area for a 900-pound load. The wagon will tow an 800-pound trailer with a 100-pound tongue weight.

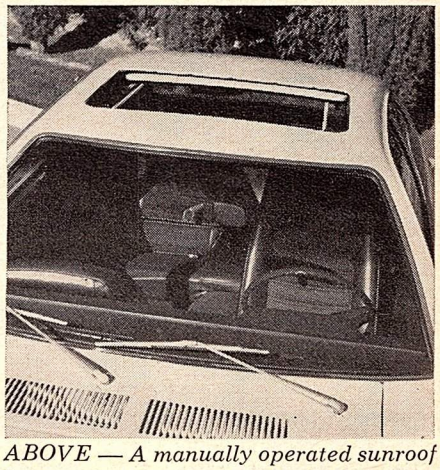
Other changes to the Pinto line, which are immediately incorporated into the wagon, includes an "NVH" (noise, vibration and harshness) package and higher capacity five-leaf rear springs. We drove both the Pinto Runabout and the wagon, noticing a most significant decrease in road noise and resonance in the critical 69-70-mph range. Additionally, the new rear springs seemed to cure the axle-hop problem that we complained about in the March 1971 issue of *Hot Rod*. With larger A78-13 tires now standard on all the Pinto models, the package is most desirable.

Courier is the name given to the import mini-pickup manufactured in Japan by Tokyo Kogyo for Ford. Many of our observations and comments are similar to those expressed for the Datsun and Toyota pickups in last July's *Hot Rod*. It offers the advantage of a slightly larger cargo box, but the 1800cc engine doesn't seem up to the power level of the Toyota. The OHC engine is rated at 74 hp except in California, where stricter emissions laws reduce the output to 67 hp. A four-speed all-synchro trans delivers power to a 4.11 rear axle. The only options for the truck are a dealer-installed radio and step-type rear bumper.

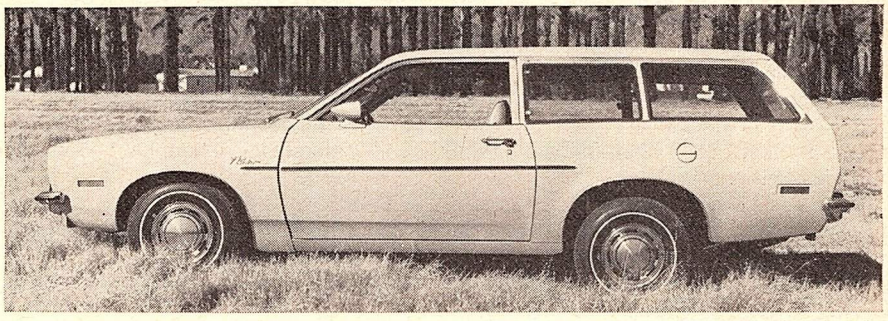
New trim packages are designed to allow a person to individualize his car, now that model changes are no longer a drastic yearly ritual differentiating the smaller cars. Most notable are the Sprint packages which are available for the Pinto, Maverick and Mustang. The three packages are similar and incorporate a white exterior finish, blue rally stripes and red trim. The interiors are similarly color-coordinated. The final touch is a "USA" emblem.

The favorite of the presentation was the Pinto. The addition of several new options and the NVH packages makes this car even more attractive and a better value for the enthusiast desiring a small economical car with good performance potential. ■■





ABOVE — A manually operated sunroof is now available on the Pinto Runabout and sedan. The sliding panel is metal and is operated by a recessed handle in the headliner. ABOVE LEFT — Courier pickup grille follows styling of other Ford trucks. Initial availability will be restricted to West Coast. LEFT — The 1800cc Courier engine is a four-cylinder design with an aluminum head and a cast-iron block. The intake manifold is water-heated to allow performance and low emissions from Zenith-Stromberg two-barrel carburetor. Bore and stroke are 3.07 x 3.70, and 8.6:1 compression

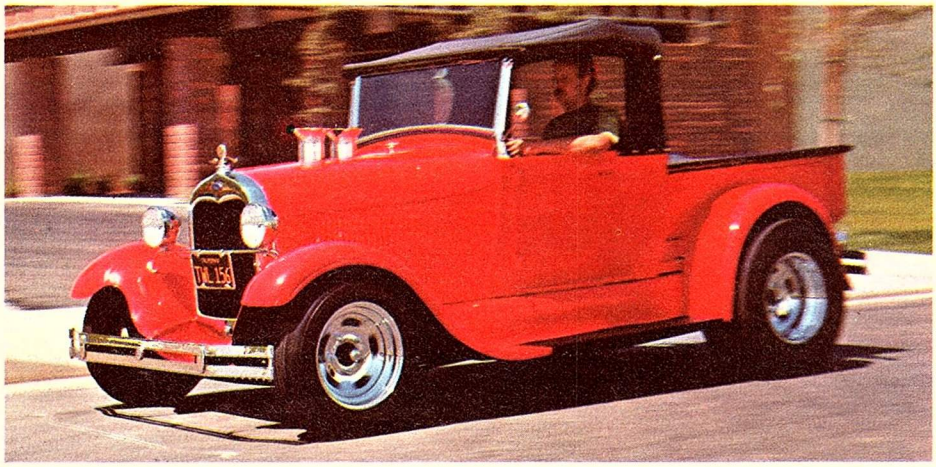


The new Pinto wagon is available in two versions, the standard (above) and the Squire (below), which is replete with simulated wood side panels. The rear cargo door swings up to reveal an opening of 48.8 inches by 28 inches. With the rear seat folded down, the length of wagon bed is 69 inches. What a spiffy parts chaser!

A 350cc thumper that gets you there... on or off the road. Where four-stroke torque makes the difference between a clear shot at the next hazard or no shot at all. AMF | Harley-Davidson, Milwaukee.

Sprint SX350. another outperformer from Harley-Davidson.

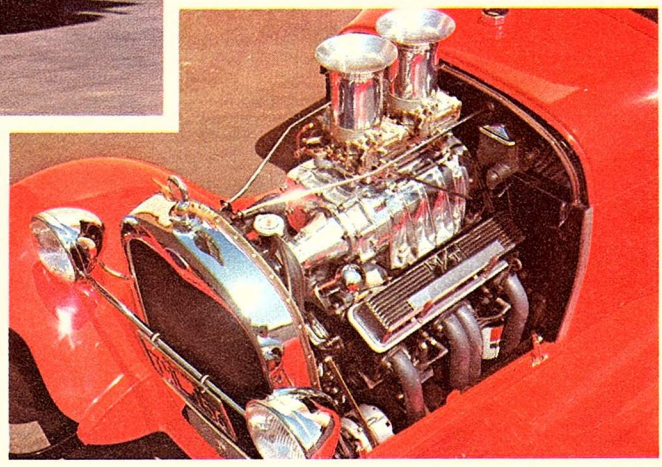
ROADSTERS!

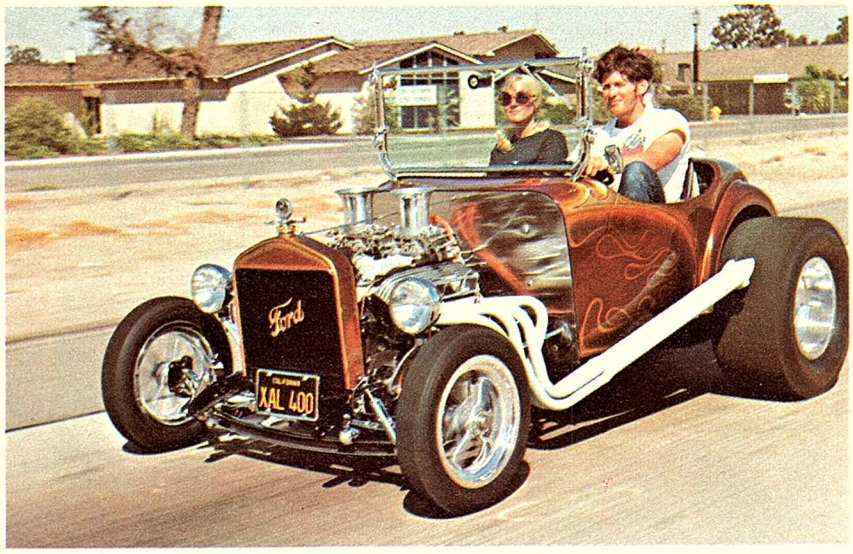


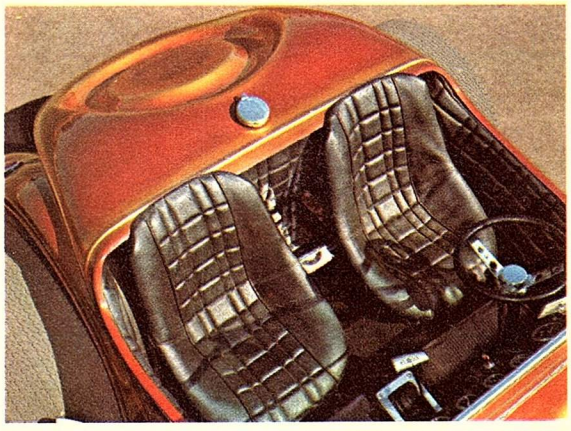
The Omaha Orange steel and 'glass 'A' body looks stock, but Harold Olsson's addition of a 6-71 GMC puffer on a Weiand-manifolded '64 small-block Chevy takes this street rod way out of the antique class. A narrowed Chevy housing and four-speed B&M Hydro attach to the semi-boxed frame. Disc brakes have been fitted to three-inch dropped front axle. Don's Trim Shop did the top and interior finishing.

owner: Harold Olsson
Lawndale, California
car: '28 Roadster Pickup

photography: Don Emmons



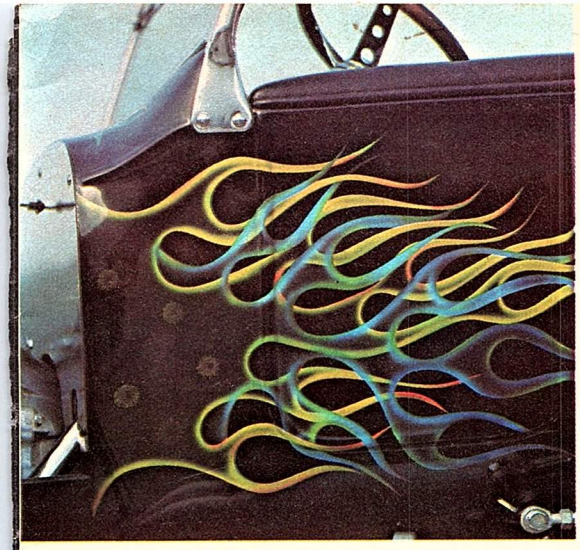




Jerry Cosce shortened a '29 'A' frame 18 inches to get a perfect fit for his 'glass '32 Bantam roadster body. Mr. & Mrs. Cosce keep their 327 Chevy-powered rod strictly street, even though it bears strong resemblance to a drag altered. Front end is an early Ford beam axle, rear is narrowed '57 Chevy housing and traction bars were made from '66 Chevy truck control arms.

owner: Jerry Cosce
Sonoma, California
car: '32 Bantam Roadster

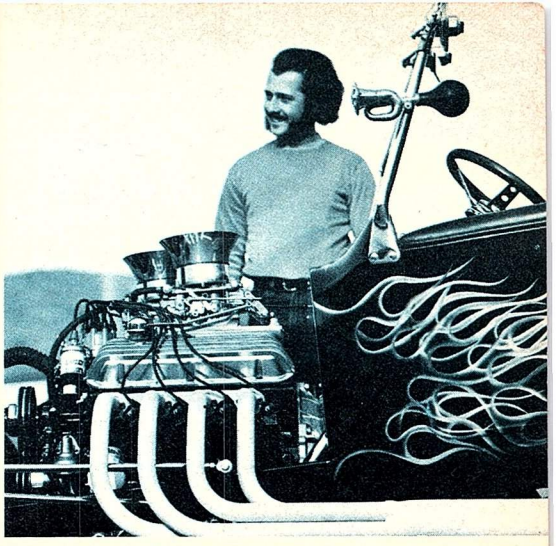
photography: Don Emmons

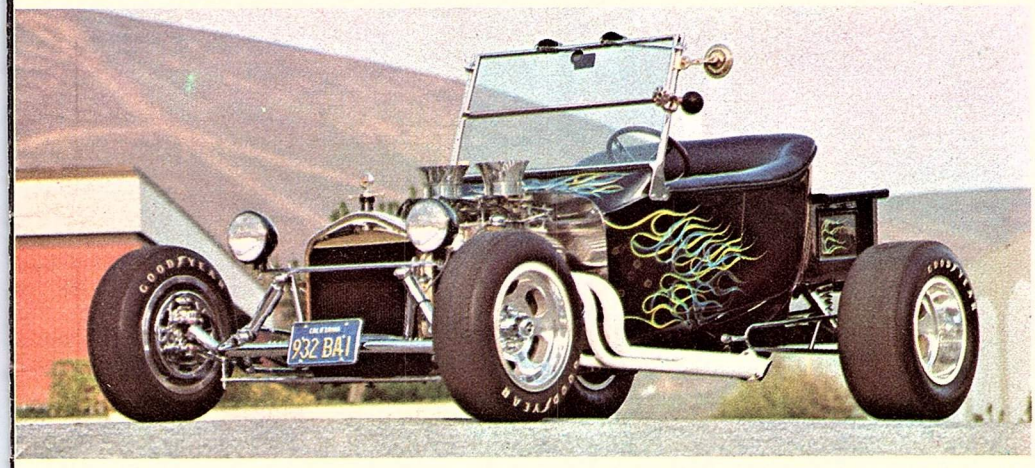


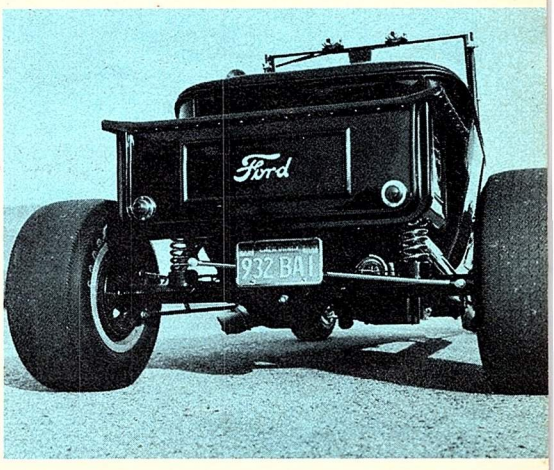
photography: Gerry Stiles

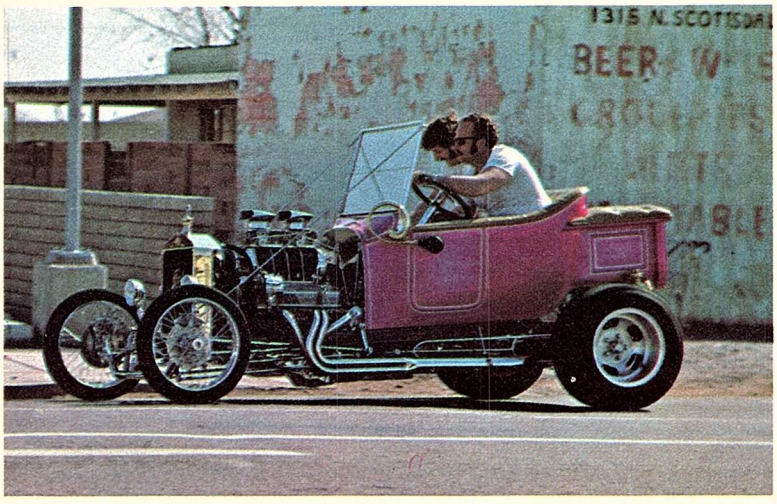
owner: Don Ciriello
San Leandro, California
car: '23 'T' Roadster

Plater and polisher Don Ciriello used one of Andy's 'T' chassis as the basis for his 289 Ford-powered street runner. Naturally, his Patio Plating Company did the brightwork. The 'glass body was made by Steve Archer. Wood dash-mounted gauges are a mix of Stewart-Warner and Sun. Body color and striking flame job were created by Bob Abrew. Donnie's potent Ford is a veteran of rod runs and car shows.



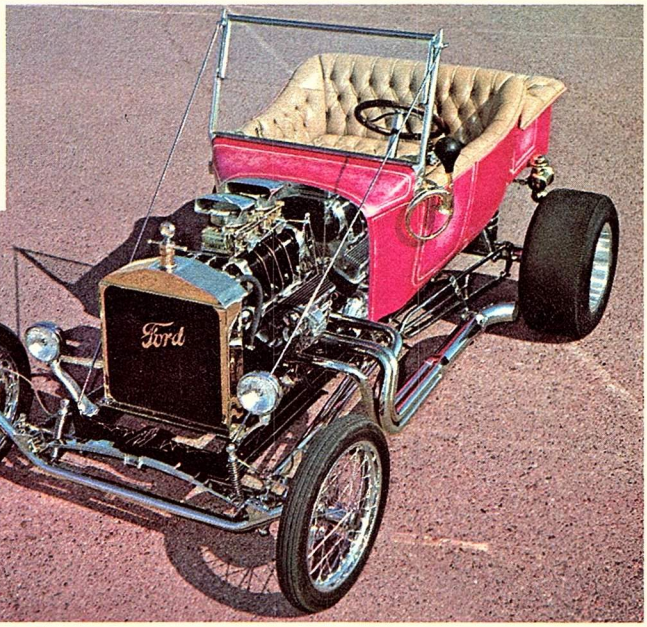


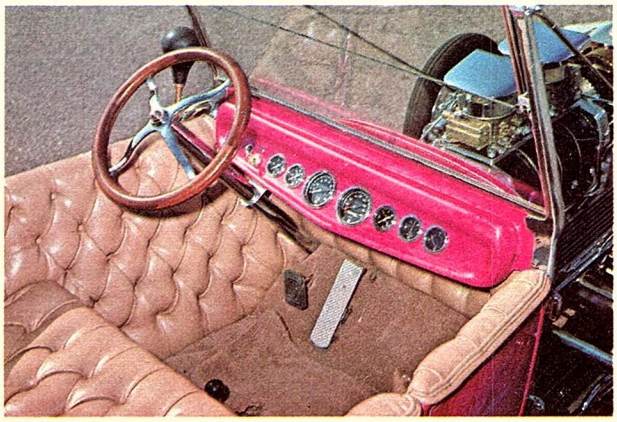




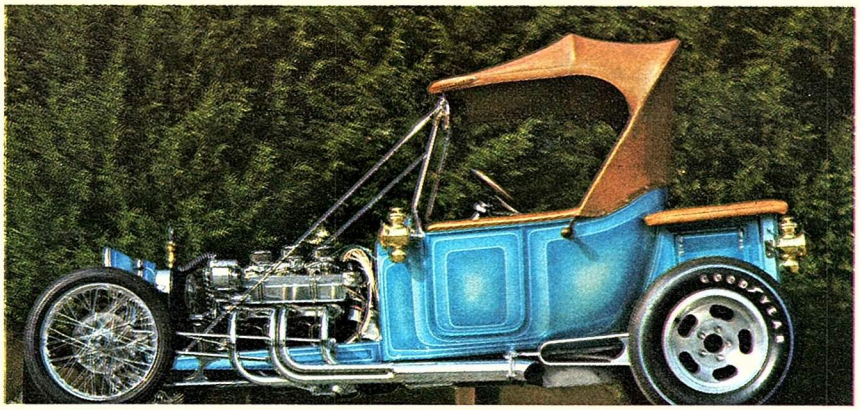
Quality Roadster Works, of Independence, Mo., is home for Ray Worth's T-bodied blown street machine. Fact is, Worth's partner, Dick Easterwood, also has a purple roadster. Ray's 327 Chevy is basically stock except for 8.5:1 compression, Edelbrock manifold, Isky drive and 6-71 blower. Don Kite did the beige upholstery, and owner Worth sprayed the purple lacquer paint.

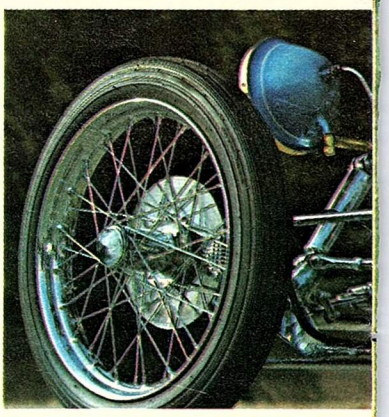
owner: Ray Worth
Independence, Missouri
car: '23 'T' Roadster





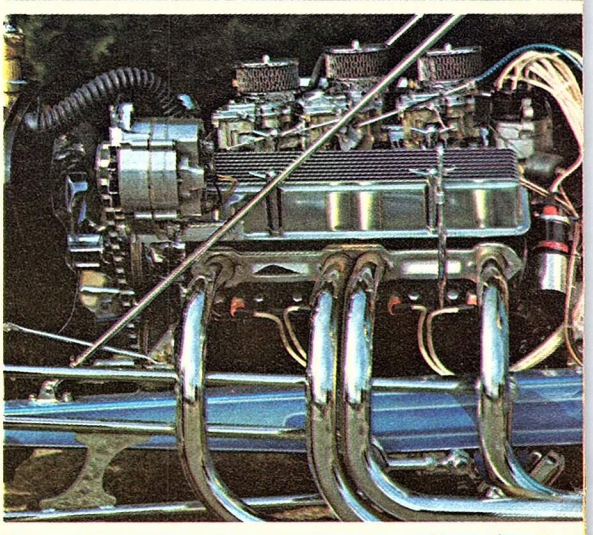
photography: Jon Asher

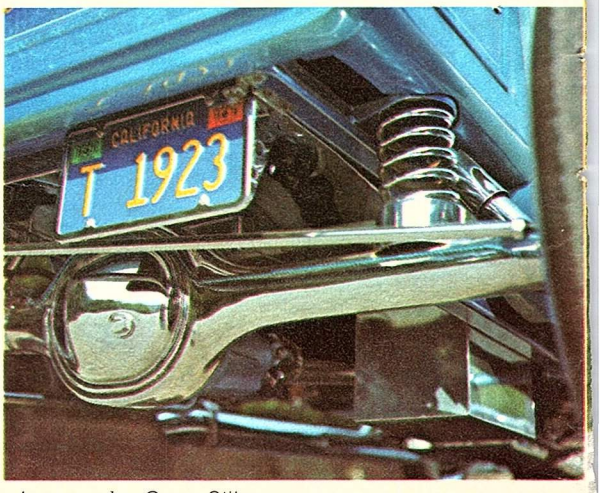




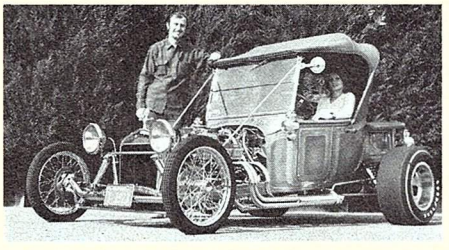
INFINI·TEE

owner: John Gourd
Walnut Creek, California
car: '23 'T' Roadster





AN EXAMPLE OF THE BEST IN SHOW AND STREET-DRIVEN ROADSTERS



John's 'T' attracts pretty passengers.

The foundation for John Gourd's showpiece '23 'T' is an Andy's Instant T chassis fashioned out of mild steel tubing. Engine is a 327 Chevy using a trio of Rochester 2-bbl carbs. Transmission is a late-vintage Turbo-Hydro. The late Chevy rear-end housing is coil-suspended and chrome-plated. The chroming, representing several thousand of John's dollars, was accomplished by C&M plating. The front tube axle has Hallcraft wire wheels and disc brakes at each end, and the steering gear is an aluminum housing unit pirated from an early Corvair. Rear wheels are Ansen Sprint. Paint work and lettering were applied by Art Himsl, and the car's wiring was laid in by Bob Burton. The natural-leather-colored upholstery, including the top with the "Nauga" face rear window, came out of the A-Action shop near San Francisco. Since completing the car about two years ago, John has taken it on several long-distance rod runs and entered it in nearly a dozen shows. The car fares well in both pursuits. When he's not driving or showing the car, John likes to take it apart and clean everything. Perhaps that's why this Bay Area rod continues to look new, and keep John smiling at the end of shows and rod runs.

photography: Gerry Stiles

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Maybe they don't completely understand why it's so easy to drive, but they do know it's a lot of fun.

So if you read *Road & Track*, try Camaro and you'll find everything they say is true. If you don't understand technical talk, try Camaro anyway.

You'll be able to "feel" the difference and you'll understand us when we say:
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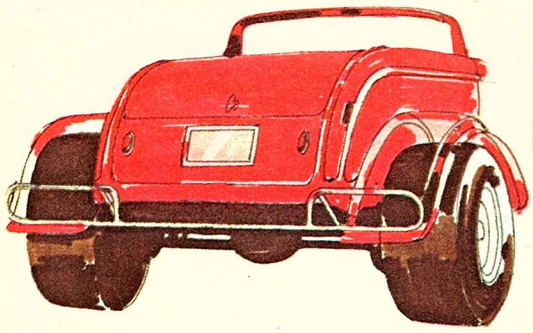
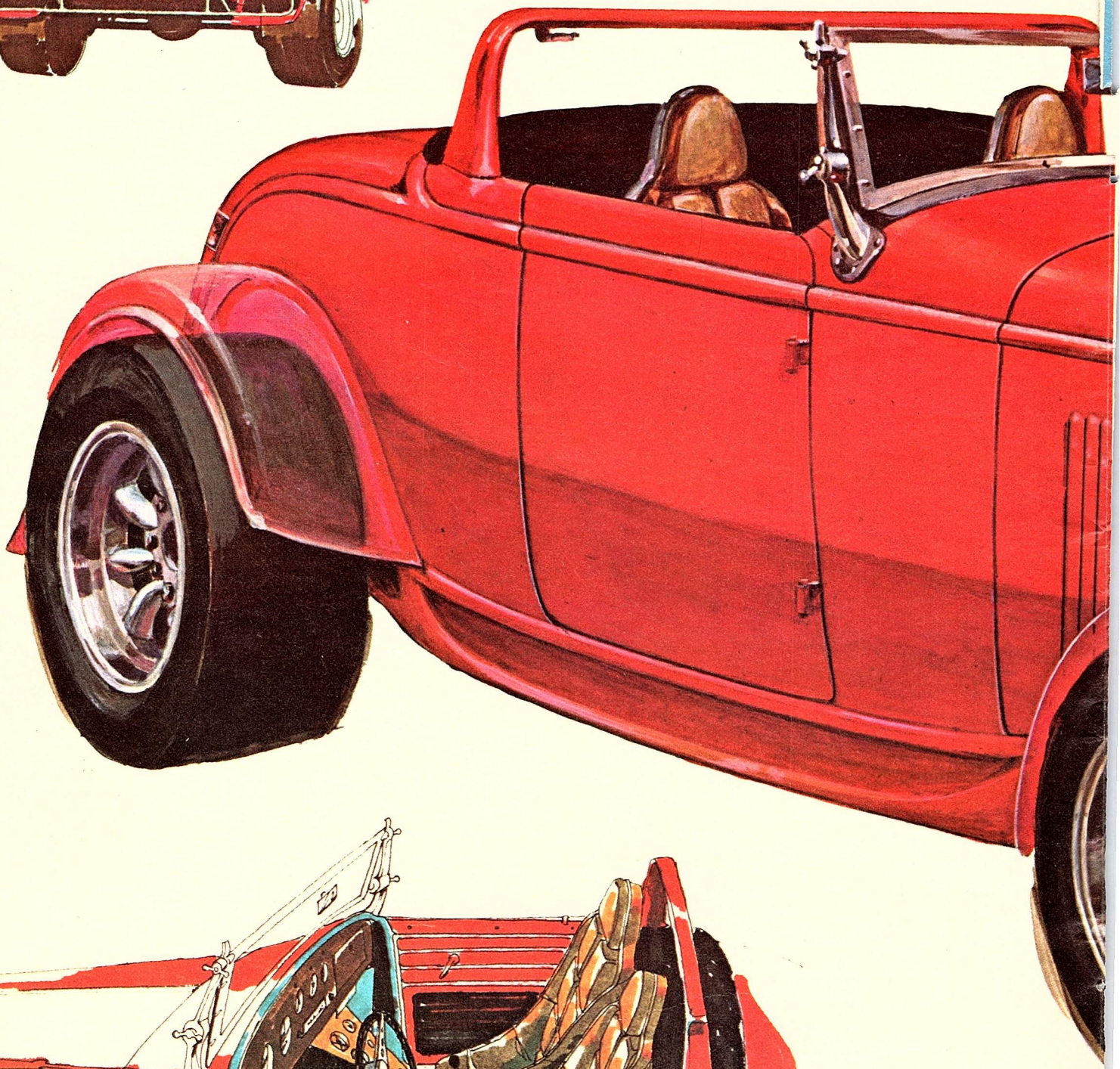
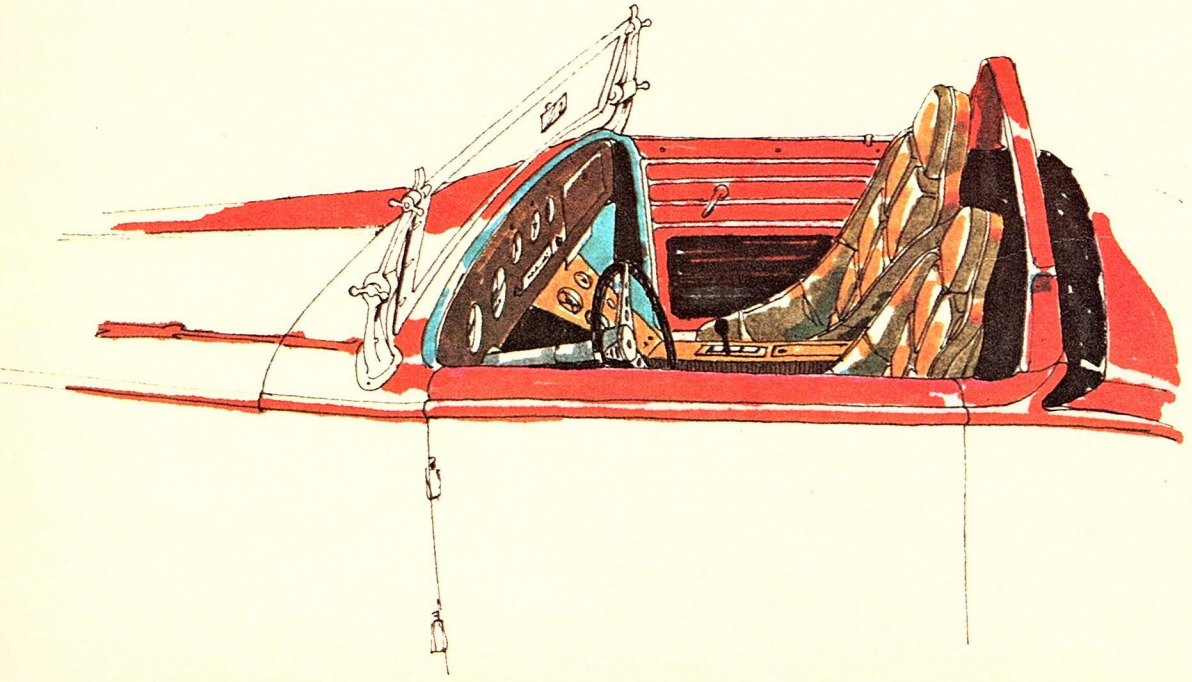
Chevrolet

There's so much to see, make sure you're around to see it. Buckle up.

HOT ROD'S



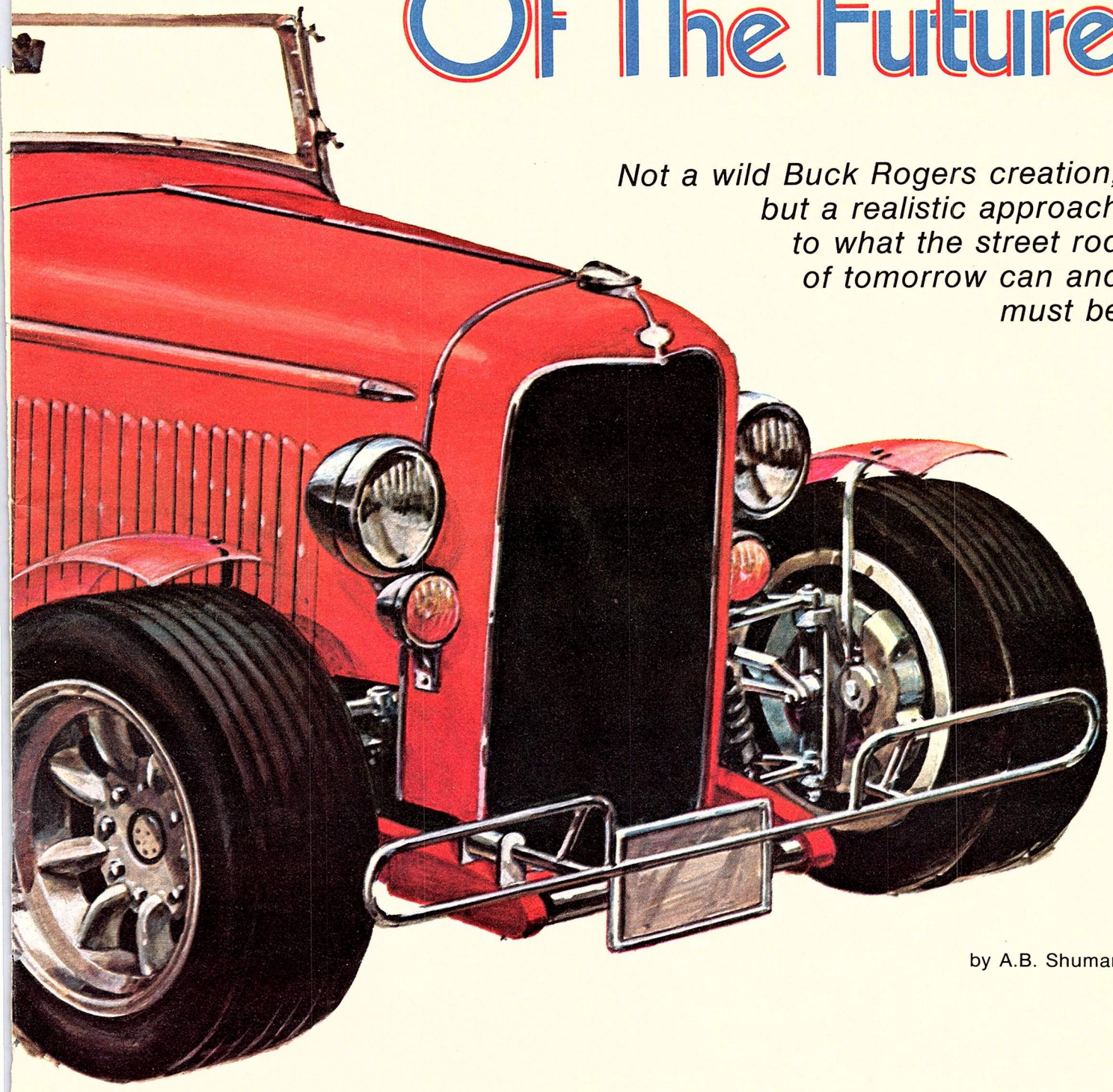




illustrations: Don Lalingo

Street Roadster Of The Future

Not a wild Buck Rogers creation, but a realistic approach to what the street rod of tomorrow can and must be



by A.B. Shuman

Our original goal was to design "the ultimate street roadster," the super-trick machine of all time, but after much serious consideration of the events and developments currently taking place, we realized that such an endeavor would have little real value to anyone. Thus we decided instead to explore the feasibility of building a roadster that would be able to meet emissions and safety regulations while maintaining its essential unfettered character and air of excitement. This is the challenge all rod builders will soon be facing, regardless of whether they like it or believe it.

The basic form is that of the classic highboy '32 Ford roadster. Body is a reinforced fiberglass replica of the Deuce, with fiberglass replica '32 frame side rails covering exposed portions of the tubular steel space frame chassis. Suspension is fully independent, with a complete E-type Jaguar rear end assembly, including brakes and hubs, and a fabricated front suspension using E-type

CONTINUED

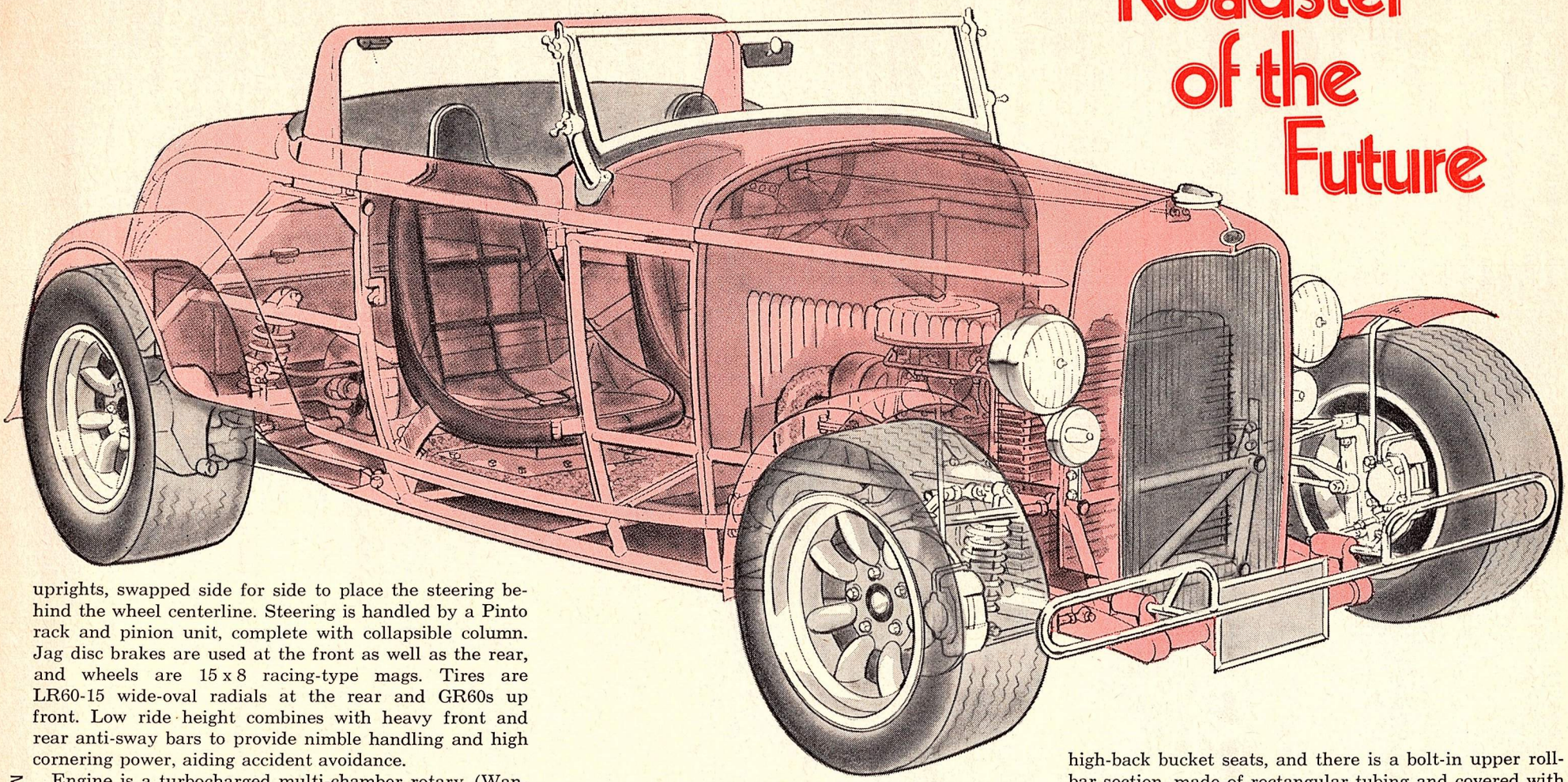
WINSTON'S DOWN HOME TASTE!

So Real. So Rich. So Good.

KING: 19 mg. "tar", 1.3 mg. nicotine, SUPER KING: 20 mg. "tar", 1.3 mg. nicotine, av. per cigarette, FTC Report AUG.'71.

illustration: Dave Kimble
concept: Bud Bryan

Roadster of the Future



uprights, swapped side for side to place the steering behind the wheel centerline. Steering is handled by a Pinto rack and pinion unit, complete with collapsible column. Jag disc brakes are used at the front as well as the rear, and wheels are 15 x 8 racing-type mags. Tires are LR60-15 wide-oval radials at the rear and GR60s up front. Low ride height combines with heavy front and rear anti-sway bars to provide nimble handling and high cornering power, aiding accident avoidance.

Engine is a turbocharged multi-chamber rotary (Wankel) producing about 300 hp. This, combined with a three-speed torque-converter-equipped automatic transmission, will provide more than adequate performance in the 1800-pound car. The rotary engine is well-suited to emissions "cleaning up," and the high exhaust gas temperature increases the low- and mid-range effectiveness of the turbocharger. The rotary's short length also gives more front-end crush distance in the chassis for energy absorption in a collision. The nerf bars are mounted in short cylinders filled with rubber discs of increasing hardness, allowing low-speed bumps without damage to the car. The aluminum fuel tank is fitted with a safety bladder and is fully protected by rear chassis structure. Twin electric pumps are used.

In keeping with current and proposed lighting laws, the headlights are 150,000-candlepower quartz-halogen units, while the front turn indicators are small driving lights fitted with fog bulbs. Side marker lights are integrated into the body side molding. The detachable fenders are made of GE Lexan, a clear, very tough plastic, tinted to compliment the body. The chassis structure forms a roll cage under the cowl and around the two high-back bucket seats, and there is a bolt-in upper roll-bar section, made of rectangular tubing and covered with streamlined fairing. The seats are fitted with Corvette inertia reel shoulder harnesses, and a high padded console helps the passengers sustain side impacts. A dual-circuit brake system is incorporated, as are fixed jacking points on the chassis.

There are many other details, some still to be worked out, but we believe it can be done. The next step, naturally, is to build it. And that's what we intend to do, starting in the next few months. And after it has been built, we are going to give it away to some lucky HRM reader. Stay tuned! ■■

TIMES ARE CHANGIN'

The old problem of never having enough rear gear at the strip can now be solved with the help of a Lenco Driveline Quick-Change. It even allows you stock gearing for cruising the drive-ins

By John Dianna ■ All Top Fuel and Funny Car racers know of Leonard Abbott and Lenco Racing Transmissions; his underdrive and two-speed units have helped power the quickest and fastest cars in the country. You early three-speed Junior Stock racers will also remember the Lenco name, since Leonard developed the double-tough synchros that so many three-speed builders use. Leonard is just one of those special racers who have a feeling for others' racing problems and do something about them.

The most recent addition to the impressive Lenco transmission product line-up is by far the most exciting, because it offers a gearing solution for both hard-core and weekend racer. The new Lenco Driveline Quick-Change (list price $250) allows the use of stock, street gearing for everyday driving but offers seven additional ratios that can be changed in minutes for the strip.

The quick-change unit is a bolt-on item that can be installed in 20 minutes. The only modification required is shortening the stock drive shaft. The drive shaft length reduction will vary from car to car, but for the Ford installation that we witnessed, it took a 6½-inch drive shaft cut for the fit.

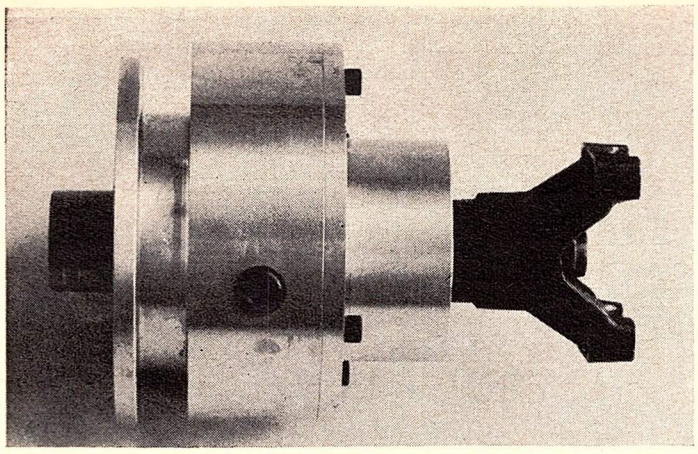
The Lenco unit is not to be confused with other quick-change assemblies presently on the market, since they are, for the most part, integral units that work in conjunction with their own rear ends. The Lenco unit bolts directly to the existing housing, and the ratio changes are obtained through a spur-and-drum-gear arrangement. It only requires changing a single gear to alter the ratio, and there are eight different gears from which to choose. The gears are numbered from one to eight, with the number one gear retaining the original ratio. From this point, there are seven possible ratios that can be installed. The original ratio of the rear-end gears determines how low you can gear your car. For example, with a 3.08 gear set in the axle housing, the final ratio can be changed through a range of 3.73 to 4.77:1, and with a 4.89 gear, from 5.92 to 7.58 (see chart for complete ratio breakdown).

The quick-change unit consists of a main housing and a movable cover which is drilled and marked for correct positioning on the housing for the specific ratio selected. The unit obtains its multi-ratios through a spur gear, driven by the drive shaft, which in turn drives a drum gear splined to fit the stock pinion stem. The drum or annulus gear is part of the main quick-change housing and is supported with a double-row ball bearing. The pinion end is splined to fit specific pinion stems, as both number of splines and spline diameter vary from model to model. The housing is cast with a predetermined offset so that when the cover is rotated (depending on which spur gear is used), full tooth contact is made between the driving and the driven gears inside the case.

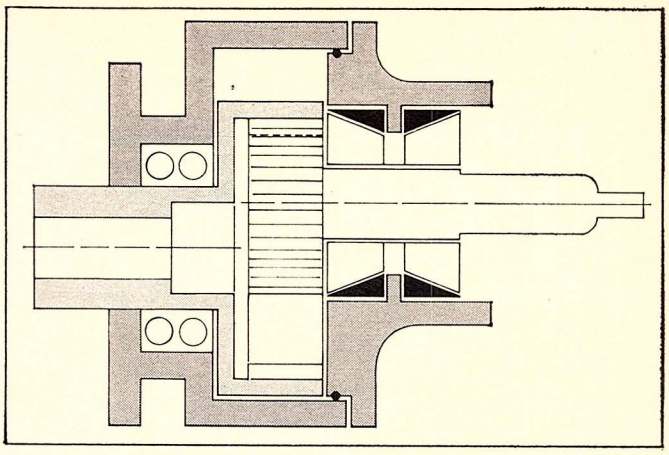
The cover is machined for an O-ring and is fitted with two tapered roller bearings. The short pinion shaft that supports the spur gear is installed in the cover with the correct preload when Lenco assembles the unit. All that's needed to install the complete package is to remove the existing companion flange (drive shaft yoke) and slip the housing over the stock pinion. The outside of the housing is splined to fit in the retaining collar, so that regardless of the machining tolerances held on the housing, the quick-change will work. With the quick-change housing properly installed, the pinion nut can then be reinstalled to correct specs. The next step is to select the proper spur gear for the ratio desired and install it on the cover pinion, using the snap ring furnished with the kit. The stock yoke can also be placed on the cover pinion and the cover installed on the housing, using the proper locating holes (numbered to match the spur gear) for the selected ratio. Lenco's suggestions for shortening the drive shaft are included in the instructions and should be followed.

To change a ratio, all that's required is to remove the four universal retaining nuts, the cover bolts and the cover. By changing the spur gear and replacing the cover in the proper location, and reinstalling the drive shaft, the job is complete. It takes about ten minutes for a gear change.

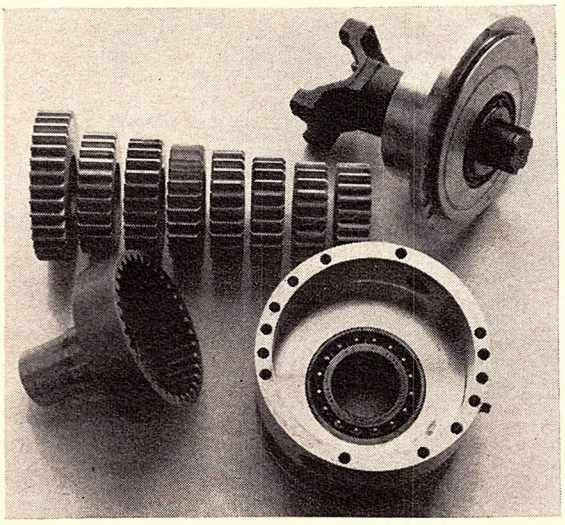
Street operation of the unit offers no tremendous increase in the rear-end noise; however, the lower you go in ratio (the smaller the spur gear), the higher the noise level. With the 1-to-1 spur gear (original ratio), there is no additional gear sound. On the drag strip, you wouldn't know the difference, anyway. There are two big advantages we see in strip operation. The first is the ability to fine-tune the car to varying track or altitude conditions in a matter of minutes, and the second is the increased dependability (because you can use larger gears, such as 3.70s, with an overall ratio of 5.73, if you so

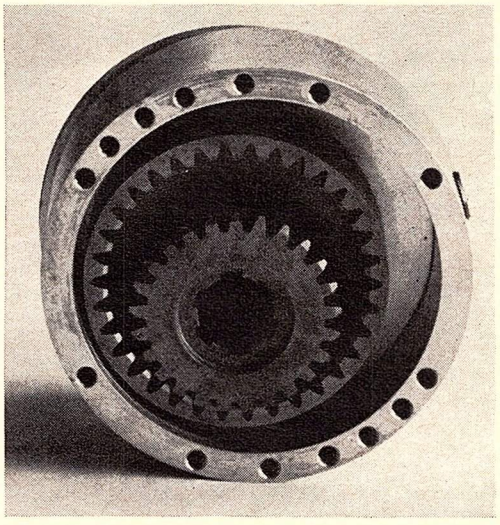


ABOVE — The Lenco Quick-Change is quite compact. The unit seen above is a machined prototype; the production Quick-Change units will utilize housing cast from aluminum.



FAR LEFT — The eight spur gears shown with the Quick-Change assembly are the key to the unit. They determine the ratio selection. LEFT — In operation, the spur gear drives drum gear which in turn drives the ring and pinion. The number of teeth on the spur gear dictates the overall gear ratio. BELOW LEFT — Leonard Abbott, who is the mastermind behind all the special Lenco transmissions, has been working on this quick-change design for a number of years. BELOW — This is a working prototype unit installed on a '71 Ford rear assembly. Production units will be mounted differently.

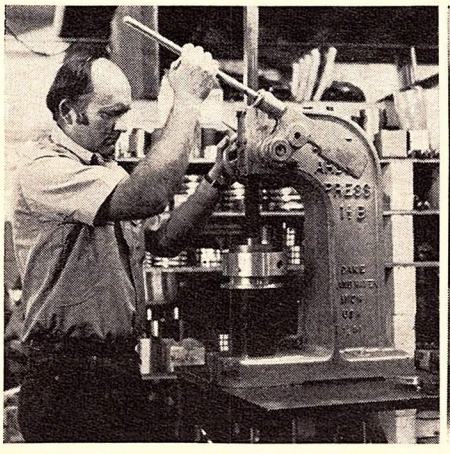


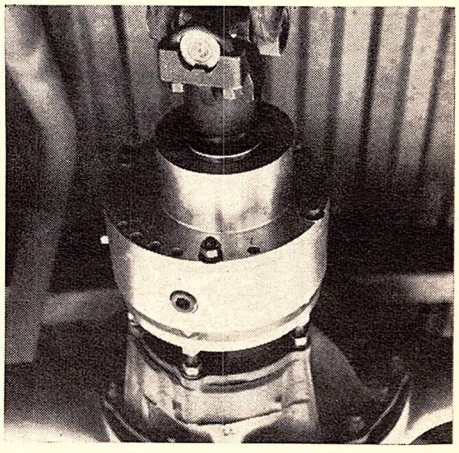


desire) that this setup provides.

The weight of the unit is about 19 pounds, and it is quite compact. Even though it is relatively small, it will be necessary to check for adequate floor-pan-to-quick-change clearance. If the body happened to come in contact with the quick-change housing on a bottoming condition, it could fracture the housing. By the time you read this, units should be available for all popular rear-end assemblies, including the 8¾-inch Chrysler, Chevy third-member type, the late-model-Chevy Spicer type, the large Ford design and the 9¾-inch Dana units. The basic difference in the various models will be the spline pattern on the annulus gear stem and the support mounts that are needed to prevent the quick-change unit from rotating under severe acceleration.

The unit comes with two spur gears of the buyer's choice; however, additional gears can be purchased for $20 each. That means to change a ratio, it will cost less than half the initial purchase price of a gear set, and you don't have to set up a rear assembly. Lenco couldn't make it much simpler for you, unless they came to your house and changed the spur gear themselves. ■■

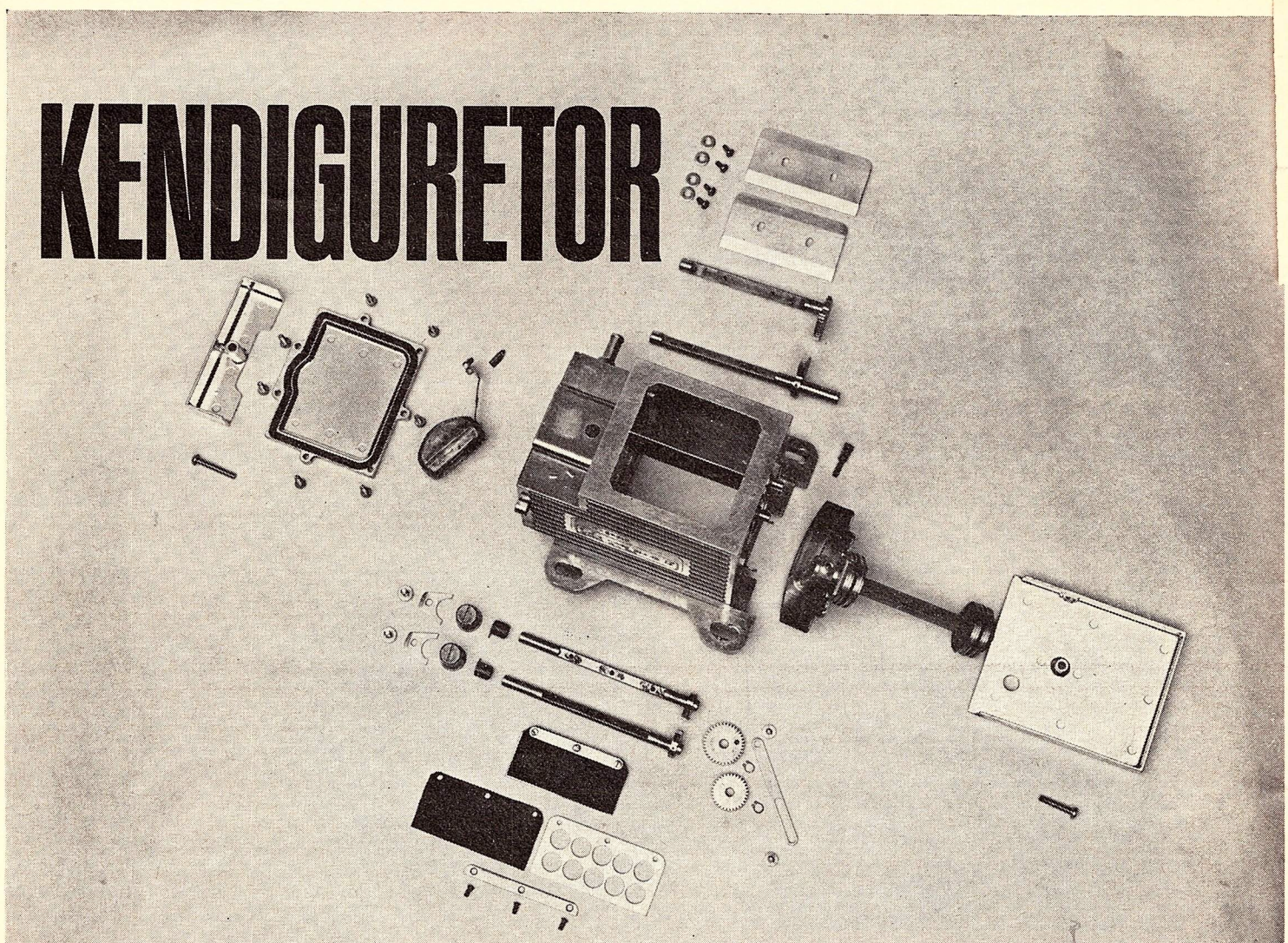




LENCO QUICK-CHANGE RATIOS

SPUR GEAR NUMBER	SPUR GEAR FACTOR	POPULAR GEAR RATIOS								
		3.08	3.23	3.42	3.54	3.70	3.90	4.11	4.56	4.89
1 (34-34)	1.00	3.08	3.23	3.42	3.54	3.70	3.90	4.11	4.56	4.89
2 (28-34)	1.21	3.73	3.91	4.14	4.28	4.48	4.72	4.97	5.52	5.92
3 (27-34)	1.26	3.88	4.07	4.31	4.46	4.66	4.91	5.18	5.75	6.16
4 (26-34)	1.31	4.03	4.23	4.48	4.64	4.84	5.11	5.38	5.97	6.41
5 (25-34)	1.36	4.19	4.39	4.65	4.81	5.03	5.30	5.59	6.20	6.65
6 (24-34)	1.42	4.37	4.59	4.86	5.03	5.25	5.54	5.84	6.48	6.94
7 (23-34)	1.48	4.56	4.78	5.06	5.24	5.47	5.77	6.08	6.75	7.24
8 (22-34)	1.55	4.77	5.01	5.30	5.49	5.73	6.04	6.37	7.07	7.58

KENDIGURETOR



The Kendig variable venturi carb looks like a box; has no accelerator pump, power circuit, secondaries or jets; has terrific response and flows 1250 cfm. Can you dig it?

By A. B. Shuman ■ In general terms, the performance potential of any carburetor is determined by the amount of air and fuel it can pass. But one of the biggest drawbacks of high-performance carbs, especially on the street, is that low- and mid-range response tend to suffer as flow capacity increases. The problem is caused by the drop in the speed of the air flowing through the carburetor, brought on by the same increase in capacity that lets the engine run stronger on the top end. One of the ways this problem has been handled on production carburetors is through the use of an air valve. Most commonly taking the form of a spring-loaded trap door mounted above the secondary throttle plates of certain four-barrels, the air valve is essentially a means of admitting only as much air as the engine requires at any instant (up to maximum carburetor capacity), even though the secondaries are wide open.

We recently learned of a new carburetor that works through an interesting variation of the air valve concept. Called the Kendig Variable Venturi Carburetor, it was actually invented about ten years ago, but it is only now getting into full-scale production, under the auspices of Pollution Control Industries. In this instance, the air valves are called venturi plates. They control the air entering a large, square air horn and are held closed by adjustable springs. Below the venturi plates, in the base of the carb, are two interconnected throttle plates. All that lies between the upper and lower "doors" is an airfoil-shaped nozzle bar with 13 fuel discharge orifices drilled on each side. As air flow forces the venturi plates open, they cause a fuel pickup arm in the float bowl to swing through an arc. Fuel enters the pickup arm through a .250 hole in the base of a cap threaded on the end of the arm. The precise amount of fuel entering the arm (and thence the nozzle bar) is controlled by the distance between the cap and a specially contoured ramp. The wider the upper doors open, the farther the pickup arm swings and the greater becomes the distance between the cap and the ramp, thus causing more fuel to flow.

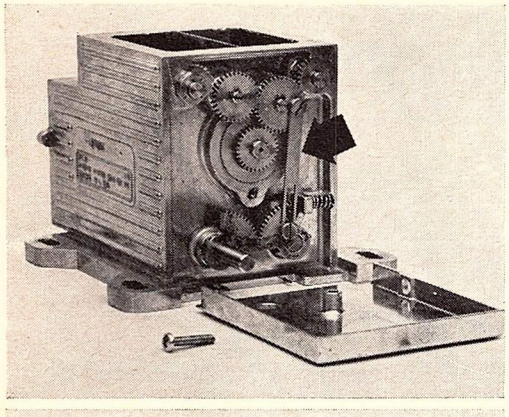
The legendary Fish carburetor had a metering system somewhat similar to the Kendig, in that it had a pickup arm moving in the float bowl, but it used a graduated slot rather than a ramp, had an idle circuit and disregarded mass air flow by connecting the pickup arm directly to the throttle. The keying of everything to mass air flow is the whole idea in the Kendig, and the system is so effective that no acceler-

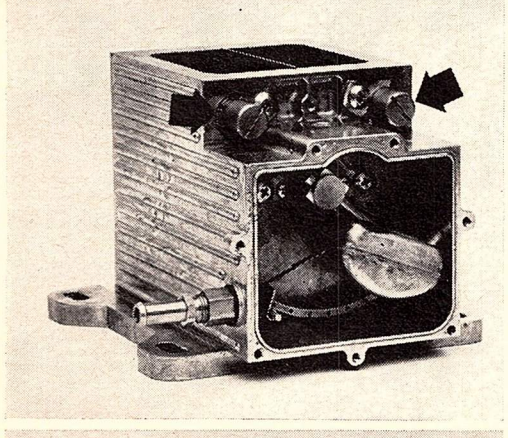
ator pump is needed, something that has to be seen to be believed. This is doubly remarkable in that independent tests at Daigh Automotive showed the unit flowed 1250 cfm.

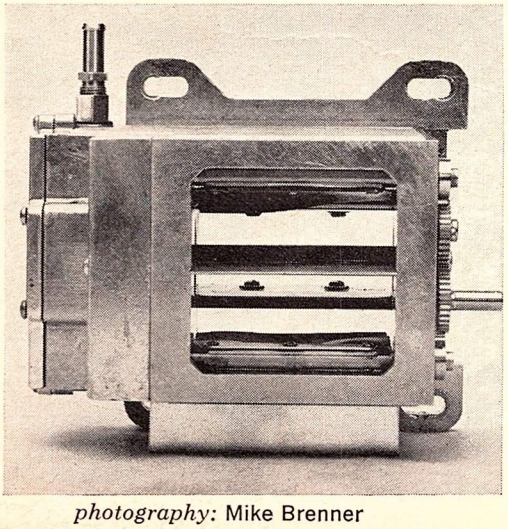
The carburetors are die-cast of aluminum and are very rugged. All fittings and shafts are stainless steel. The venturi plates are drilled with large holes and covered with flexible Viton flaps, which prevents any damage that might be caused by a backfire. There is a link which cracks the venturi plates slightly when the throttle is held full open. This is the only time there is a connection between the two, and it is incorporated solely to permit starting the engine if it should become flooded. The gears used are made of sintered brass for reliability, a factor that should be helped by the low number of parts (135 total, compared to more than 300 for the average conventional carb).

Installation is usually a straight bolt-on, but in the case of certain manifolds, such as the spread-bore GM, an adapter is needed to space the carb high enough so that the rectangular throttles can open fully. The throttle arm is on the right side, and the fuel inlet is on the left, facing rearward. The large single float is pivoted at the rear so that it comes open on acceleration. The general shape of the ramp provided with each carburetor takes into account such factors as engine displacement, compression ratio and camshaft design, but the owner will be able to dial-in the carburetor for his own particular combination by removing the bowl cover and adjusting the pickup arm cap up (to richen the mixture) or down (to lean). Blank ramps will probably be made available also for more exact individual tailoring. Fine-tuning can be accomplished by changing tension on one or both venturi plate springs, loosening to lean.

As of now, PCI is developing the selection of ramps for street use, having already come up with their designs for competition engines. They've also come up with a low-emissions ramp, which allowed an old 289 Mustang to make it by '74 California specs. On the performance side, we've seen cars pick up over 20 rear wheel horsepower compared to a well-set-up hi-perf conventional carb. Price is on the high side now, but with production volume, should drop to or below current top-line carburetor prices. Can you dig it? ■ ■

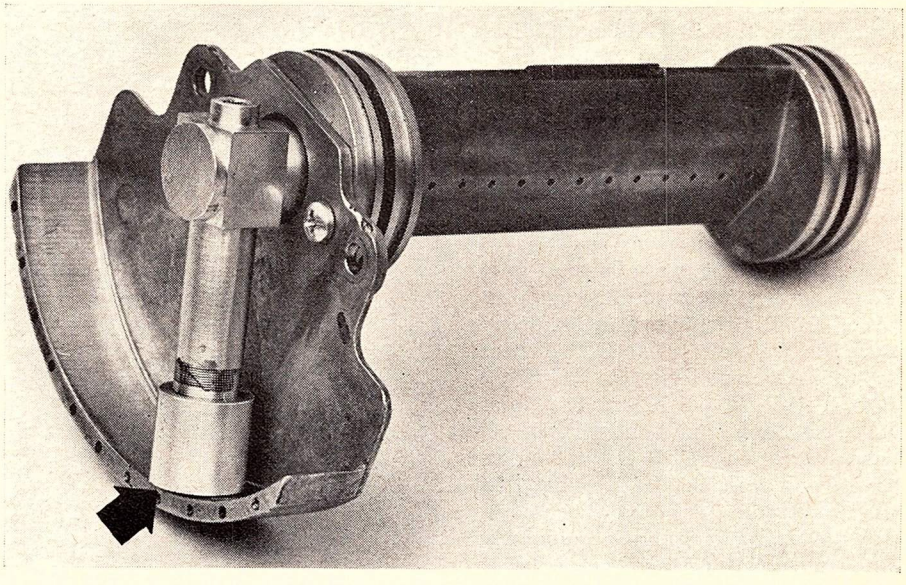






photography: Mike Brenner

LEFT — Key to Kendig carb is gearing of pivoting fuel pickup arm to opening of venturi plates. Only connection between throttle plates and upper doors is a link which pulls doors open slightly at full throttle so flooded engine can be started.



ABOVE — Geared fuel delivery shaft passes through nozzle bar to pickup arm in float bowl. Amount of fuel allowed to enter arm is dependent on the distance between threaded cap and ramp (arrow), that distance increasing as the venturi plates open. Holes on each side of nozzle bar provide even distribution of fuel in airstream. LEFT — Adjustments are made by removing bowl cover and varying cap to ramp distance and/or changing the venturi plate spring tension (arrows).

Top view of wide-open carb indicates how 1250-cfm capacity can be achieved. Special bell-mouth adapters are being designed for use with stock air cleaners.

Part of strip testing is being carried out with Neil Van Order's 11-second AMX. Out-of-the-box carb was only a tenth off fully flogged race setup.

DATSUN-OF-A-GUN

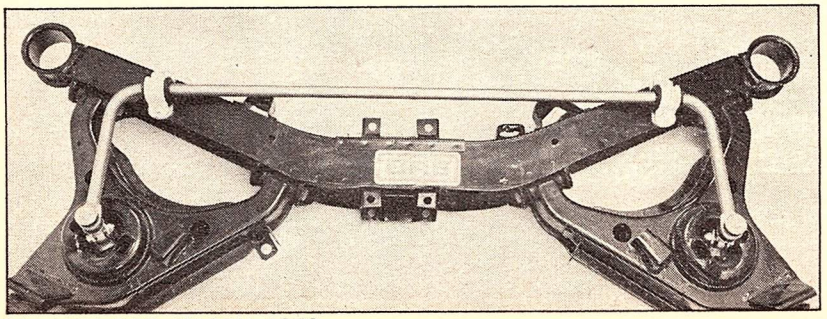
By Steve Kelly ■ Wheels, tires, springs, shocks, stabilizer bars, headers, mufflers, intake manifolds, carburetors, clutches, five-speed transmissions, flywheels, camshafts, pistons, valves, cylinder heads, carburetors, axles, gears, fiberglass body components and just about anything else you can think of that will make a Datsun 510 run better are neatly stacked inside the Brock Racing Enterprises store. The stock 510 sedan is a well-engineered little car, but it isn't much of a performance car in the eye of the hot rodder. Because of BRE's success in Datsun racing, more people are aware of the availability and good quality of BRE parts from El Segundo, California, rather than performance parts from Nissan Motors' Gardena, California, parts depot. Nissan Motors has a large competition department and a good inventory of performance parts.

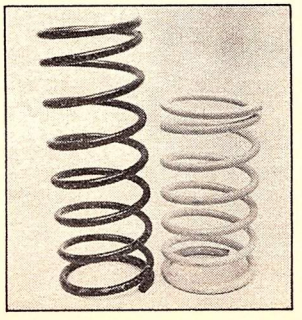
Pete Brock has been racing Datsuns for Nissan Motors for several years, and has developed winning ways. His cars have been SCCA National Champions at the past two American Road Race of Champions, and 1971 was his best year. On top of the National Championship earned by BRE's John Morton-driven 240Z, Morton also drove a BRE Datsun 510 to a Championship in the SCCA "Two-Five" (2.5-liter-engine class) Trans-Am circuit. No wonder Brock can make a street-driven 510 really handle.

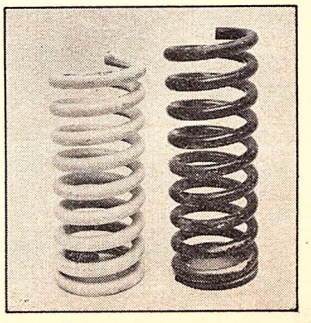
Not being blind to the fact that mini cars are steadily becoming more popular with hot rodders and everyone who appreciates performance, we've begun to get ourselves more involved with this kind of car. Our Datsun 510 is just one of many import and/or mini cars we

Using Brock Racing Enterprises components, the Datsun 510 sedan becomes a mini street rod

BELOW — Rear bar is a quick fit after four holes are drilled in rear member. It doesn't adversely affect ground clearance. BELOW CENTER — Front coil (left) is substantially taller, and thinner, than BRE replacement. Same goes for rear coils (far right), and that's why the 510 will ride stiffer and handle better after installation. The swap is easy.







have lined up for tests, and some of them will be project cars. In this month's story, we'll deal with upgrading the 510's suspension. Next month we'll make the engine work like something street runners will appreciate.

In looking at this project from a budget viewpoint, we consulted with Pete Brock about the steps to take and the cost involved. When we asked him what he would advise as the first step for a Datsun 510 owner with about $100 to spend, his immediate reply was, "The Mulholland Kit." The Mulholland Kit is a spring kit, named in honor of Los Angeles' Mulholland Drive, a diabolically laid out "race course" running along the tops of the mountains from Hollywood to Malibu. The reason Pete insists upon improving the suspension first is that a normal (stock) Datsun 510 suspension won't complement engine work. In other words, the suspension will have to be improved anyway.

In order to find out how to do the job, and how a 510 is going to respond to our work, we needed a Datsun 510 test vehicle. Enter Mike McKenna, owner of Sun Datsun in Whittier, California. Mike has been selling Datsuns for a number of years, so he's well qualified to know how many customers want something more than a stocker. He loaned us one of his cars, and when he gets it back, he'll really have something to show his customers.

Installing the spring kit proved how idiotproof the instructions are. The Mulholland Kit is $64 and includes heavy-gauge-wire coil springs for front and rear. We also put on the $28 front stabilizer bar. This is a 7/8-inch-diameter unit, and it goes right where the stock one fits. To do this kind of work, a set of metric wrenches and sockets are required. Sears lists a complete set for just over $44, but individual sockets and wrenches shouldn't run much over $20 for the type of work to be done within this project.

At this point, our investment was $92, not counting tools. From this point, we went over our budget and added a $48.50 rear stabilizer bar (3/4-inch-diameter) that installs quickly once you've drilled four 1/4-inch-diameter holes in the rear crossmember. Installing the springs and stabilizer bar is not at all complicated, providing you spend a few minutes reading the instructions.

For those of you with desires to spend a little more money on modifications, we jumped from our $140.50 investment clear up to $276 by adding $136 worth of Koni adjustable shocks ($40 each, front; $28 each, rear). This is hardly a mandatory step, but a good one for extremely flat cornering. We set them at one full turn away from absolute rock-hard, so they are semi-rock-hard. The front shock installation requires complete removal and disassembly of the front spring/strut unit, which is also a required step for putting on the front Mulholland springs. It shouldn't take more than a half-hour per side, and once you've taken the spring/strut assembly off for spring changing, you become an acknowledged expert in this field. The rear spring swap is an easy one. The roughest part of changing the shocks is taking out the trunk compartment divider that separates the cargo area from the gas tank and wheel wells.

Our next suspension improvement ran our tab up another $160 by adding a set of 13- x 6-inch American "Libre" aluminum wheels. Offset is not too severe, but to make sure there'd be no fender interference later, we asked George Britting (a well-known race car constructor and metal man) to hammer the inside edges of the fender openings. If you don't know how to do this, do yourself a favor and spend a few dollars with a qualified body man instead of risking your fender edges to your own hammer work.

While it *could* work, mounting the stock 5.60- x 13-inch stock tires on the 6-inch-wide American wheels would be akin to using no-lead gasoline in a fuel dragster. So we picked up a set of A70-13 Goodyear Polyglas tires. Up to this point, our total investment was $436.50, and the Polyglas tires added $200 and a great deal more traction ability. Tires are the limiting factor between how well the suspension does work and how well it can work. By the time we come back in the April issue we'll have had a chance to substitute a set of Goodyear's new radial AR70-13 tires for the A70-13s. We will also have comparative figures between the two types of Goodyears from skid pad tests.

At this point, our suspension refinement was finished. Overall height of the 510 was reduced by 2 1/4 inches, yet it's still legal as far as headlight positioning and ground clearance for street duty. The improvement in handling is nothing short of fantastic. In stock trim, the narrow-tired 510 is prone to darting around when hit by a crosswind. That's not a problem anymore. Neither is taking a corner at a good rate of speed. Understeer is still present, but only slightly noticeable. The car absolutely refused to "squat" on acceleration or "dive" upon deceleration. The results of skid pad tests between stock suspension

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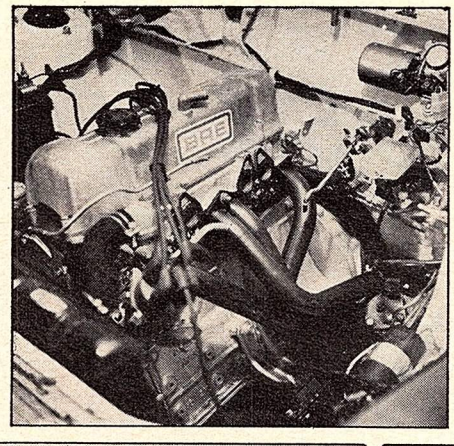
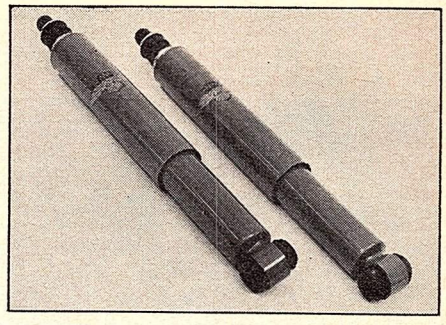
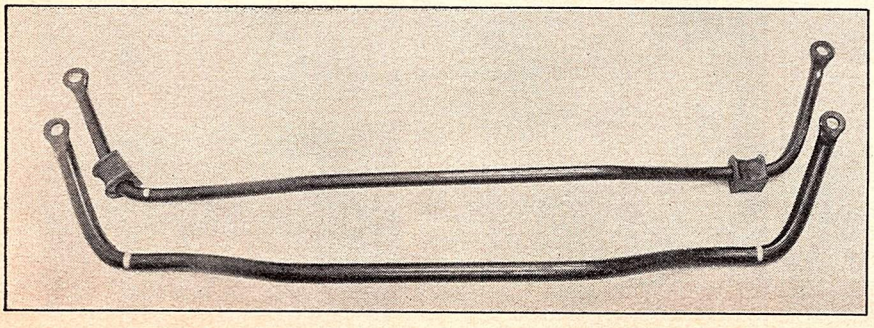


RIGHT — BRE/Cyclone header and exhaust went on 1600cc engine with a minimum of difficulty, produced better performance. BELOW — Stock front stabilizer is the "skinny" one (top). Hefty BRE bar fits same holes. BELOW RIGHT — Front spring/strut assembly has to be removed in order to install high-cost adjustable Koni shocks. Results more than justify the expense.

Rear Konis can be installed easily, and adjustment ranges from super-stiff to mildly firm. Koni lifespan is infinite.



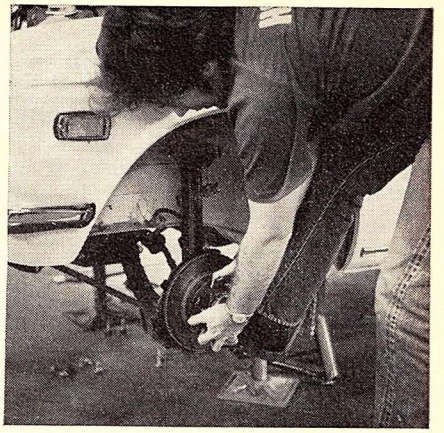


DATSUN-OF-A-GUN

and our Mulholland Datsun 510 show an improvement in lateral "G" force of .212 of 1.0 G. A stock 510 circles a 200-foot skid pad at 30.2 mph, a lap time of 14.0 seconds, for a lateral acceleration G-load of .611. Our Mulholland-suspended 510 will run the same test at 35.0 mph, in 12.2 seconds, for a G-load reading of .823. By comparison, the "official" BRE Trans-Am sedan, using 975 x 13 Goodyear racing tires, will develop 1.01 G-load, so if a person wanted to go parking-lot racing (slaloms) on the weekend, he could obtain about a .1 increase in G-loading by taking along a set of Goodyear racing rubber.

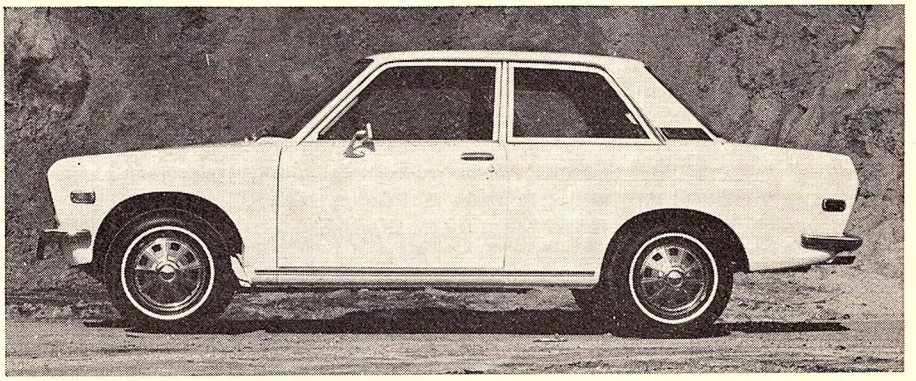
One thing discovered during skid pad test is that with the car able to withstand the .823 G force, the carburetor float bowl dries out after about a lap and a half. And this is one of the things to be fixed as part of our engine upgrading. We jumped the gun a little concerning engine modifications by installing a BRE/Cyclone header and exhaust system. Total cost of the competition header, muffler and exhaust system is $139.20. The new exhaust does raise the sound level, but not to an unlawful stage. The exhaust did allow the car to run 18.09 seconds in the quarter, at a speed of 75.26 mph. Best stock time was 18.22 seconds at 73.52 mph. Removing the glass-pack muffler, we got the car to run 17.88 seconds at 78.65 mph. All runs were made using a 5500-rpm shift point.

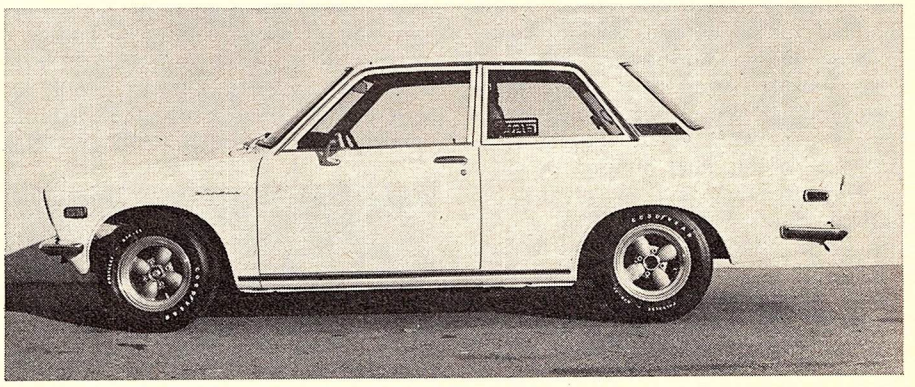
We like just everything about the stock 510 Datsun. It shifts smoothly, stops quickly, delivers good mileage, and is built and finished very well. It's a good starting point for a BRE-outfitted street performance machine. Next month we'll show how to make the stock 96 horsepower only a memory. ■■



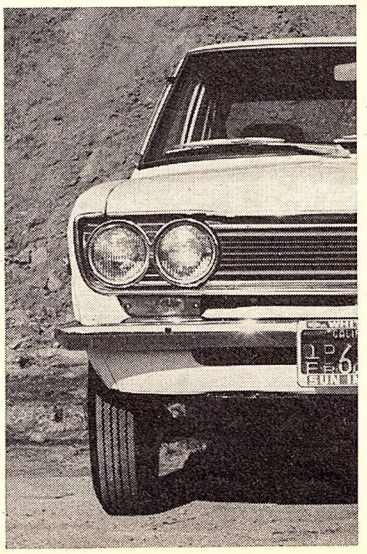
Author Kelly shows correct arm-and-foot science to use in separating lower strut from integral spring/strut unit.

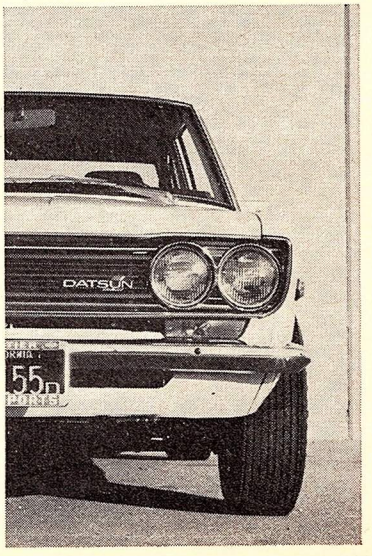
photography: Mike Brenner and Steve Kelly





RIGHT — Upper view is of our stock, Sun Datsun-supplied, 510 2-dr., and lower is the "after" view, complete with American 13x6 "Libre" wheels and AR70-13 Goodyear Polyglas Wide Treads. Visual difference is 2¼ inches. BELOW — Main improvement is handling ability. It even leaves the starting line better now. Car is now ready for next month's better engine. BELOW LEFT — Wider tread width makes the car more stable at all speeds. Goodyear radials will be on the 510 soon. So far, ne fender interference has occurred.





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1972 Mustang Mach 1

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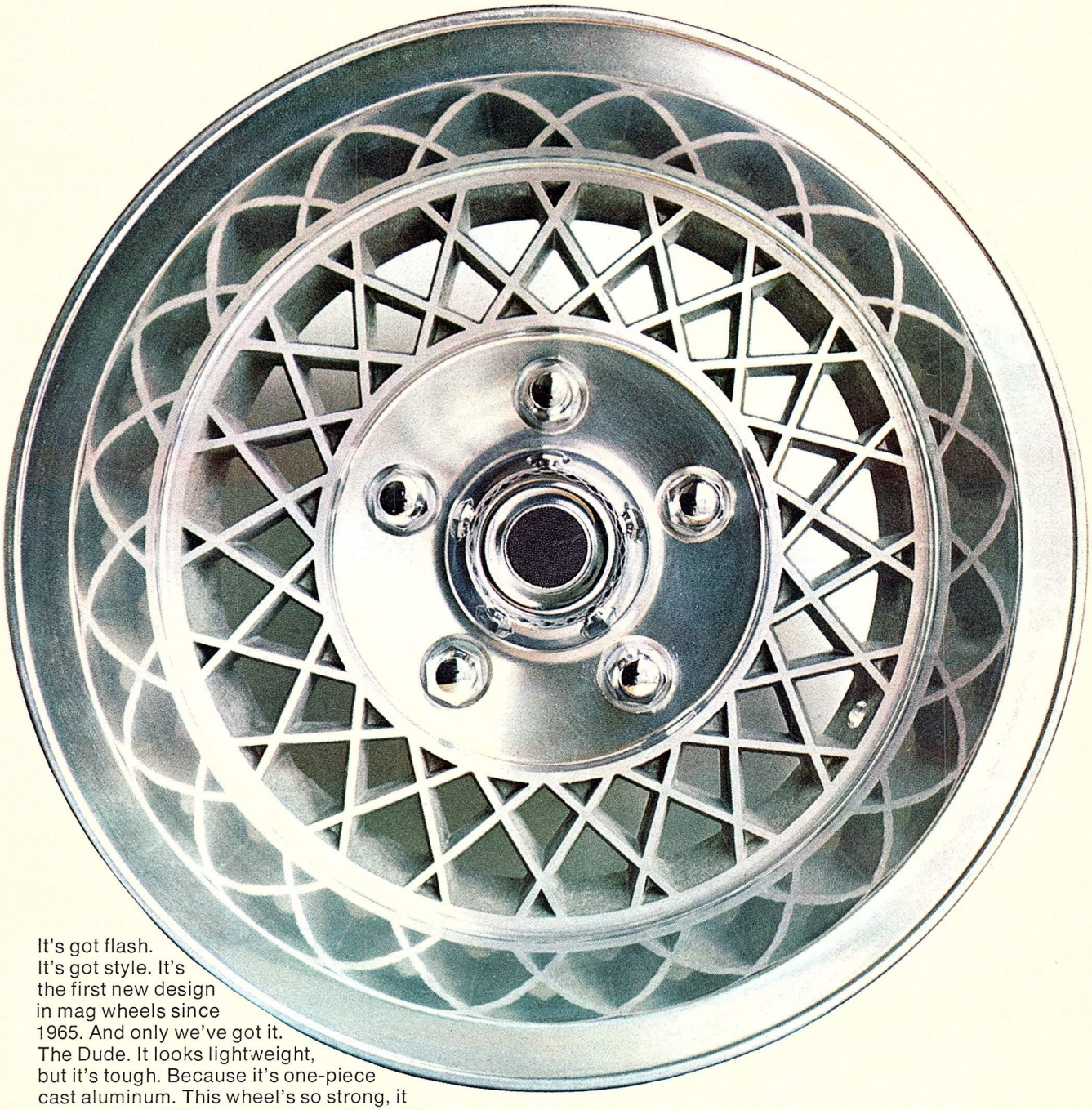
HOT ROD RACING ACTION

Leon Fitzgerald's "Pure Heaven III" is not only the quickest and fastest rat-motored fuel altered, it is one of the most spectacular to watch; witness this "one wheel" start! Leon has twisted the Chevy to a 7.25 e.t. at 200-plus mph. Les Welch snapped this rare one with a 200mm lens on a Nikon, Kodacolor X film, f/8 at 1/250.

The snazzy wire-wheel look is back! We call it The Dude.



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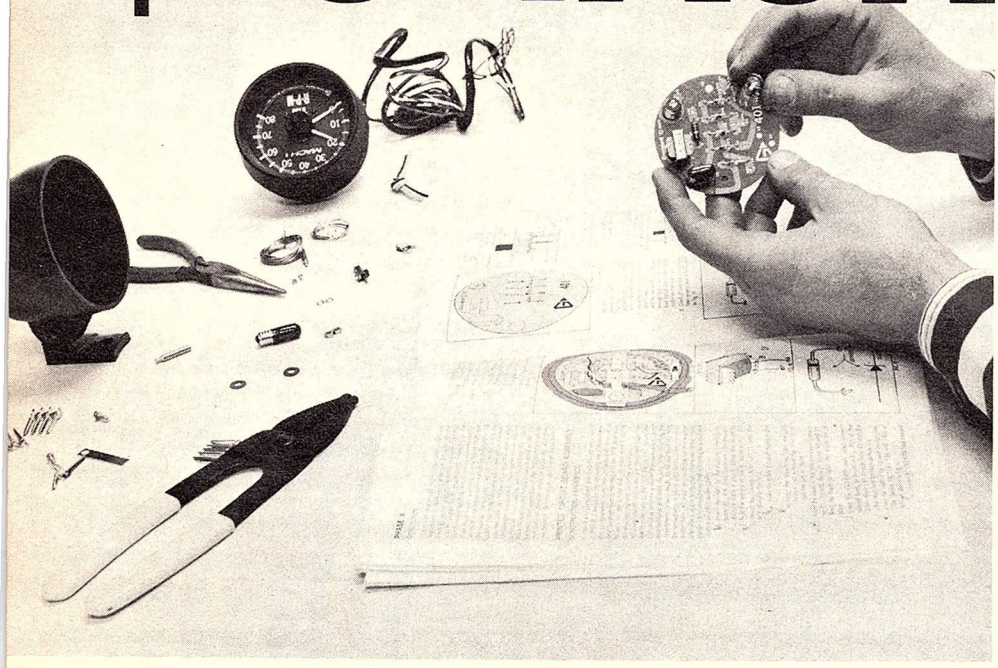
$19 TACH



Lots of fun, the pride of doing it yourself and a worthwhile tach are all included in the low budget price

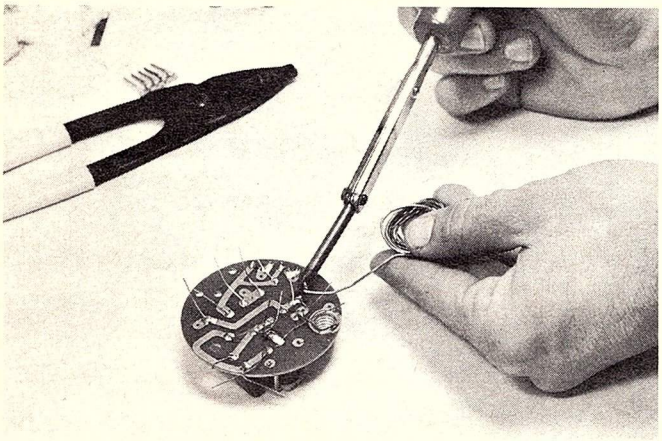
Los Angeles-based Graymark Enterprises has been manufacturing and selling electronic project kits to schools for several years. Recently they introduced a tachometer kit which has become one of their best sellers. We requested a sample of their $18.95 mail order kit, in order to evaluate ease of assembly and quality of the final product.

In general, we were quite delighted with the kit. The instruction manual was divided into two sections, the first a "textbook" section including experiments to explain the theory and operation of the components and the second a section containing complete, detailed directions for assembling the tach.

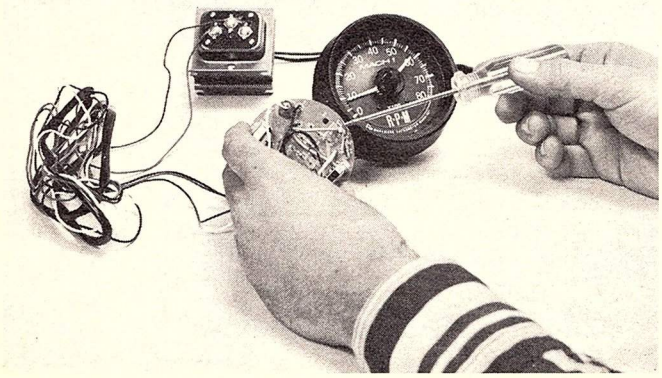
The instructions, complete with diagrams, made assembly a snap. Our unit was put together in less than two hours by someone who had never assembled an electronics kit before. No more skill was necessary than is required for constructing the typical plastic car model.

After assembly, we installed the tach on a '72 Road Runner. The instrument worked just like it was supposed to, which made our do-it-yourselfer pretty proud. We drove the car around for a while and found our only cause for criticism: The case was not quite rigid enough to keep the assembly from vibrating. We'd recommend that a supplementary mounting strap be fabricated and used to aid in holding the case rigid. (By the time you read this, there may be a new case, according to Graymark.)

Building the tach was a ball. It also gave us that "sense of accomplishment" that comes from doing things yourself. Pride of building, combined with a modest price, makes the Model 401 Graymark tachometer an enjoyable hot rodder's project. ■ ■

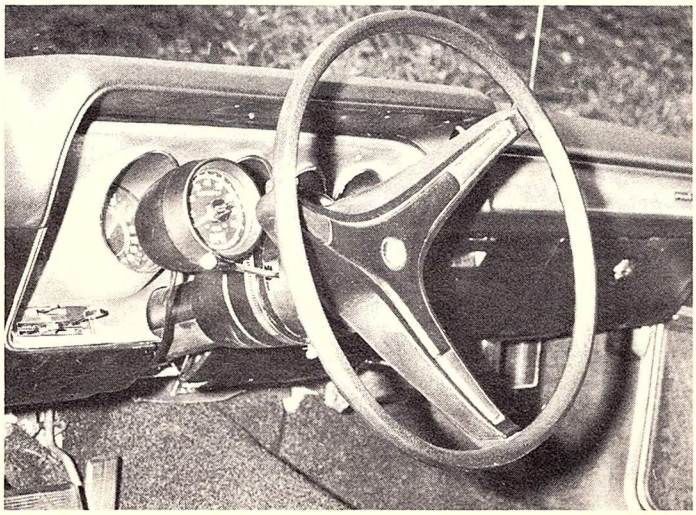


First step in assembly is soldering component parts to the printed-circuit board. After this, lead ends are snipped off. The task proved easy.

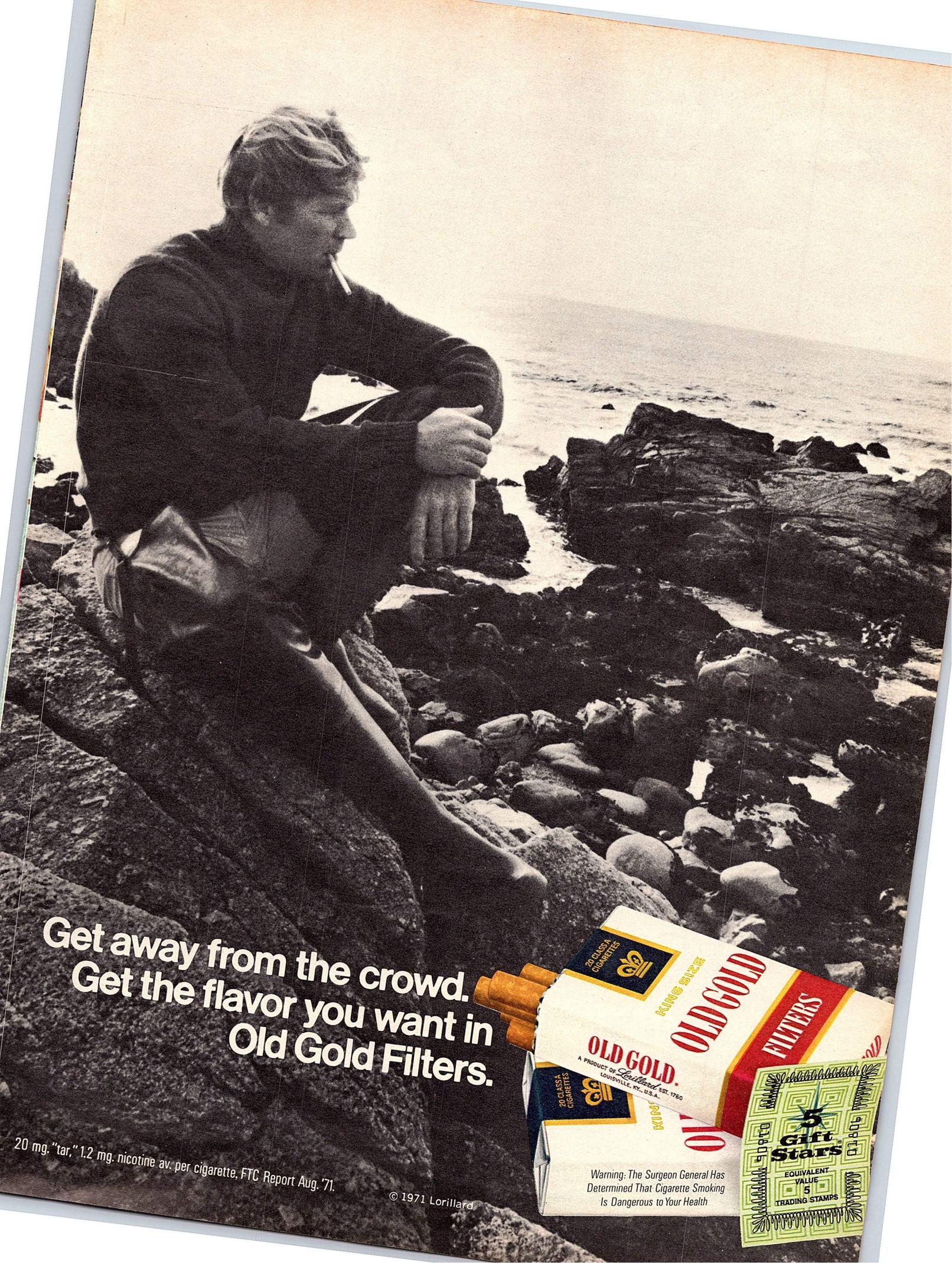


After assembly of electronic components, the tachometer is calibrated by using a doorbell transformer or other low-voltage AC power source. Zener diode provides stabilization.

photography: Steve Green



8000-rpm tach has 250° sweep, white numerals on black face and claimed accuracy of ±2%. Switch permits use on one- to three-cylinder two-cycle, two- to eight-cylinder four-cycle engines.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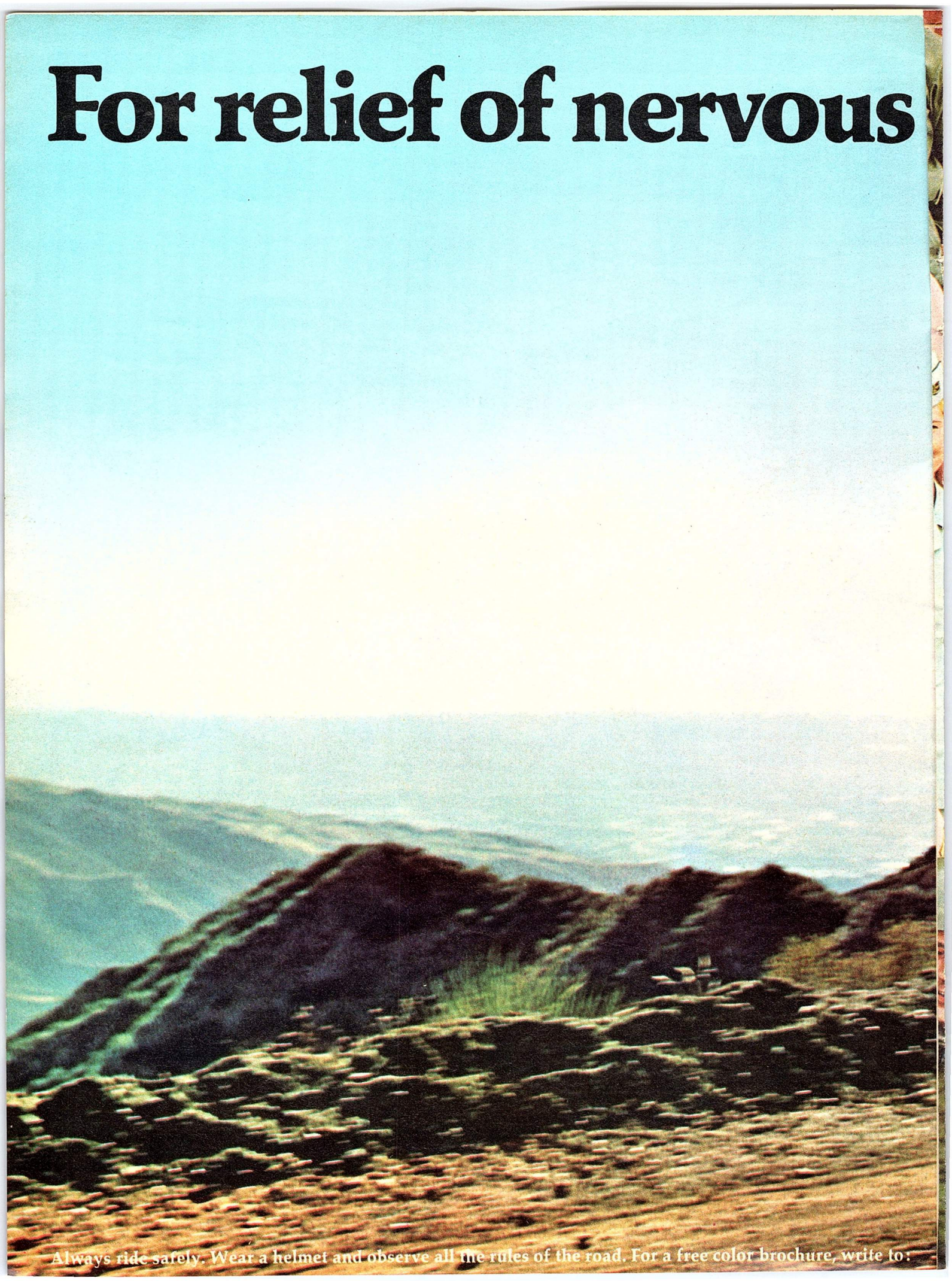

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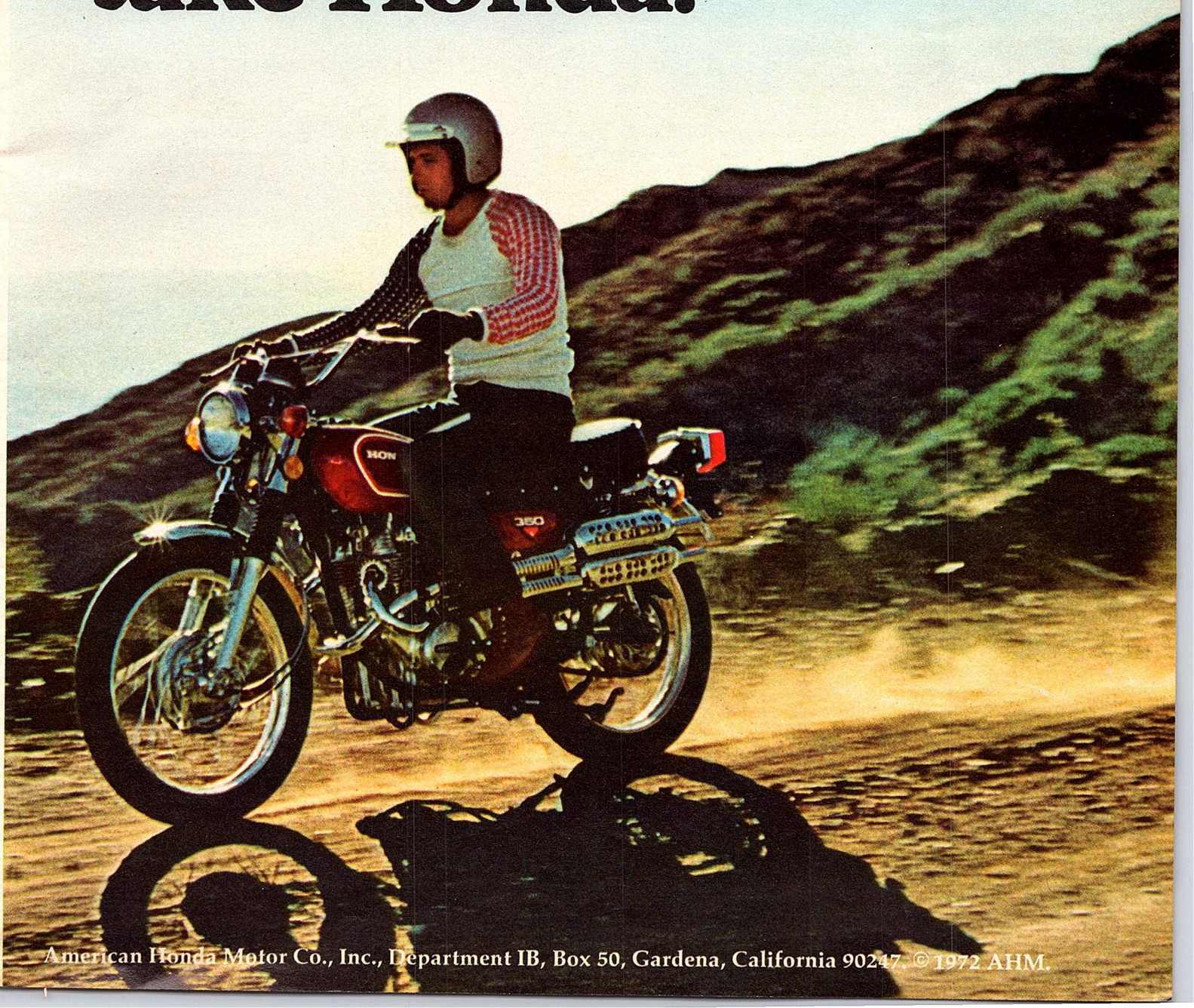
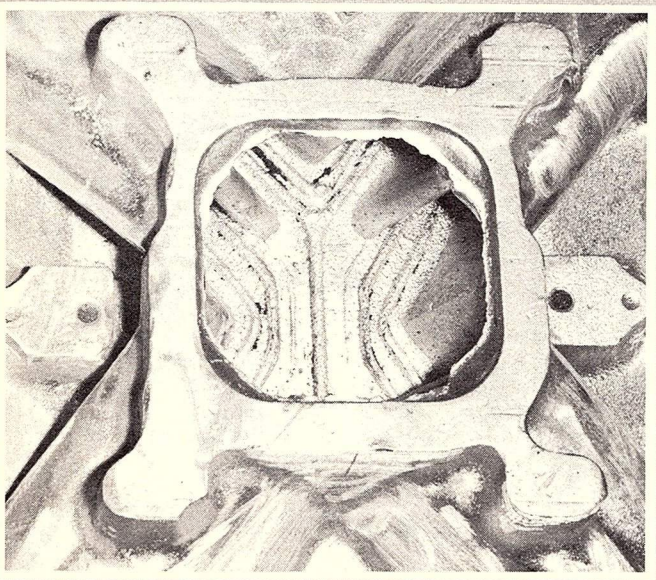


SWEETIE for the STREETER



Herein lies Torker's difference as compared to the Tarantula. View of this prototype casting shows ribs on plenum floor which extend into port runners for high-flow stability.

Edelbrock's new Torker promises improved low-end torque, reduced emissions, better fuel mileage and all-around streetability

Minus racing rubber, Edelbrock's Z/28 Torker ran sub-14-second e.t.

By Steve Kelly ■ Edelbrock's new Torker intake manifold looks just like the Tarantula introduced last year. Appearance is one of the few things the manifolds have in common. The Torker is a street-oriented, single four-barrel manifold, and right now it is available only for small-block Chevys. Units for other engines requiring low-end torque will be offered later in 1972. The Torker is a derivative of the Tarantula, a manifold meant more for mid- and high-rpm engine speeds, thus making it well-suited for racing. While the Tarantula *can* be use on street-operated cars, its true benefit isn't realized then, due to the normally low operating range of the street engine. That's why the Torker was developed. It improves low-end torque by speeding up low-rpm intake flow. When compared to the Tarantula, low-speed air flow is upped by about 30%, and at some points along the scale, by as much as 60%. In the high-rpm ranges, the Torker does not have quite the air-flow capability of the Tarantula. By "high-rpm range," we mean 7000 and above.

The present Torker design is one Edelbrock very nearly discarded. The manifold really wasn't showing significant power increases on their dyno checks, and it was only after they installed it on a car, a 283-powered, Powerglide-transmissioned Chevelle, that a performance increase was noted. Since their dynamometer is not of the inertia type (for low-end torque readings), Edelbrock's designers weren't really seeing what was happening. One realization made as a result of this is that the dyno can't tell all.

In another strip test, performance was evaluated against the time clocks, using a 350-cubic-inch, Turbo-Hydro-equipped '70 Z/28 Camaro. With no changes other than installing a Torker in place of a Tarantula, elapsed times were reduced from 0-60 mph by .30-second, and by .52-second in the 0-70 mph runs. The quarter-mile performance of this lightly warmed-over, Torker-equipped Camaro was a best of 13.92 seconds, with a speed just over 102 mph.

While the outside of the Torker looks the same as a Tarantula, the discernible interior differences include a higher plenum floor (raised about ½-inch), which also reduces the overall plenum size; ribs along the floor of the plenum box and, to some extent, ribs in the runners. These ribs serve to direct the high-velocity fuel/air mix. At the speed the fuel/air mix is capable of obtaining, a serious reversion problem could occur. Flow reversal is caused by many things, including exhaust dynamics, and is always a problem in high-speed manifolds. There were some reversion problems in the initial Torker layout, but these have been overcome with a port-area "lip" and some slight changes within the runners. The radius from the carb to the port runner is nearly the same as with the Tarantula. The pressure rating at the entrance to the port runner is within a few percent of being identical at all points.

The proof is in the performance and in driving. Edelbrock let us drive their Torker-manifolded Camaro on the street, and the throttle response is unlike anything short of an injected car. Two things were most noticeable. Less throttle is needed to achieve a desired speed than is required with a stock system, and this means better mileage and lower exhaust emissions. The other point is that the engine seems to run smoother. With a greater air/fuel mix always on tap, and the accompanying better distribution, the smoothness could be a result of the intake flow being ready before the engine demands it.

Because a Torker-equipped engine takes less fuel than ordinarily required, most carburetors will require rejetting to a smaller size to bring the air/fuel ratio to a proper mix of about 14.8:1. A ratio between 14.5 and 14.9 should produce an ideal mix on most cars.

The Torker is presently being made only for four-barrel carbs having equal-size primary and secondary throttle bores. However, commercially available adapters for spread-bore carbs, such as the Quadrajet, Thermo-Quad and the 4165 series Holley, can be used on the Torker.

The Torker will wind up helping out more than just the street-driven muscle car. It should be quite a bonus to campers and recreational vehicles, and for race car haulers, all of which suffer at the bottom end when the vehicle is fully laden. Torker for the street, Tarantula for the street and strip. ■■

ACCELERATION TESTS: TARANTULA versus TORKER
(Z/28 Camaro, Turbo-Hydro, 350-cubic-inch V8)

TARANTULA	TORKER
0-60 mph	0-60 mph
9.45 seconds	9.15 seconds
0-70 mph	0-70 mph
12.51 seconds	11.99 seconds

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No gimmicks, no frills,
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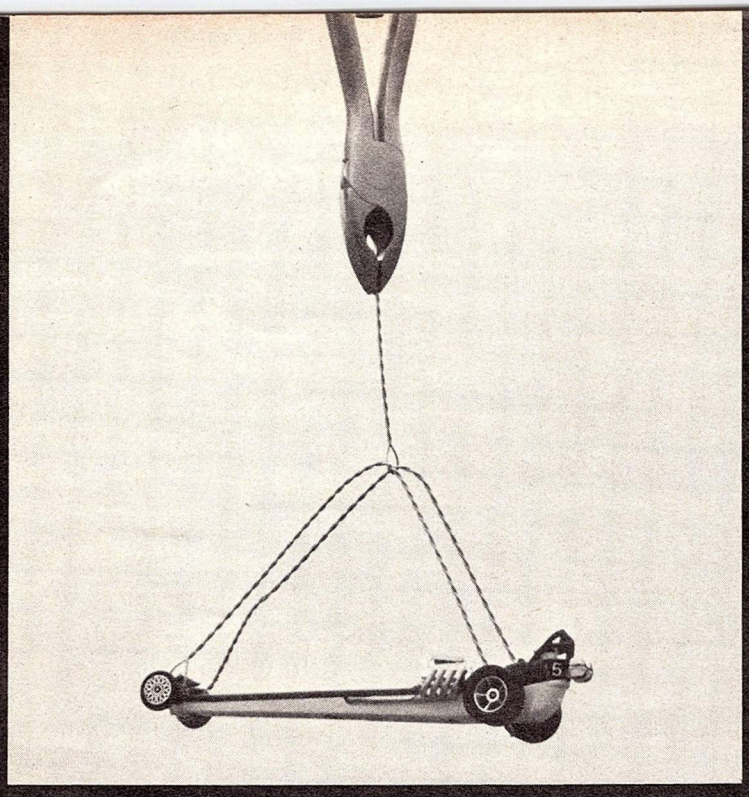


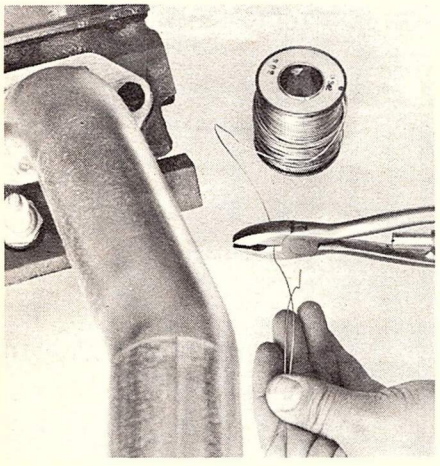
WIRED IN

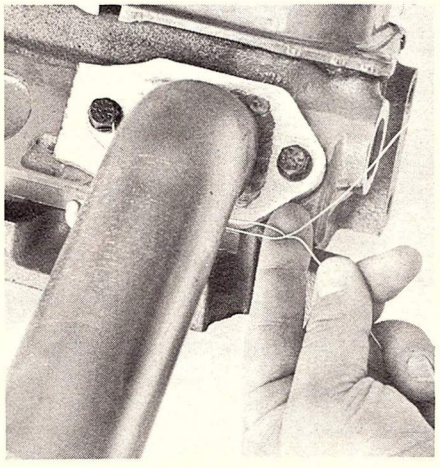
Here's a good tip from the aircraft industry that can keep your racer in one piece

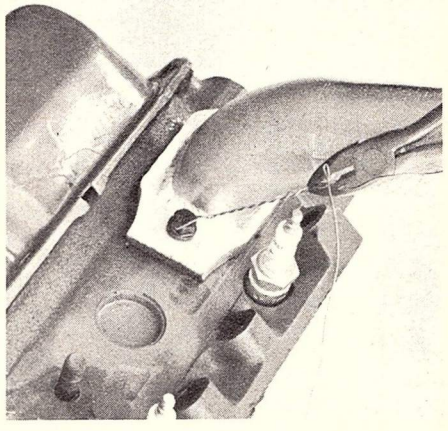
By Steve Green ■ The widespread availability of vibration-proof fasteners during the past few years has been a great aid to the auto enthusiast, permitting him to keep things together with greater reliability. There are, however, some applications where the plastic types of anti-vibration measures, such as nylon lock nuts or Loctite, aren't particularly suited because of high temperatures. Such a place might be on exhaust headers, and indeed, anyone who has installed headers knows how easy it is to lose a few header bolts.

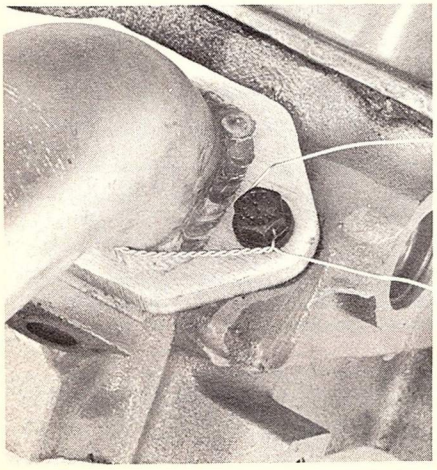
For such an application, there is no substitute for the aircraft mechanic's old standby, safety wiring. With this inexpensive method of keeping things together, stainless steel wire is twisted around and through the parts to mate them mechanically and prevent the rotation and loosening of fasteners.

Safety wiring has been used on race cars for many years, but there are many rodders who aren't aware of its benefits. By following the steps shown here, you can save yourself the embarrassment of losing necessary parts, and possibly a race. ■■

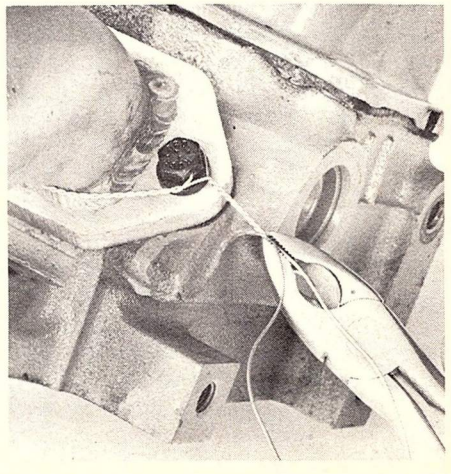








ABOVE LEFT—*Roll enough wire off the spool to adequately reach both bolts when wire is doubled and cut off.* **CENTER**—*Run safety wire to midpoint through one bolt and cross it.* **ABOVE RIGHT**—*Twist the wire up to the point that it will reach the next bolt. A wire twister tool makes the job much easier, but a pair of pliers will suffice.* **LEFT**—*Run one side of the wire through the other bolt. Take care at all times not to fracture wire by overtwisting it.* **RIGHT**—*Twist the two remaining end pieces of the wire enough to secure it, and cut off the excess. It's done!*



the Hurst performers

Hurst sets its standards high. The result is a wide range of products offering exceptional performance, dependability and value. For 1972, those standards apply to a variety of new products.

From Hurst, there's the new RAM 3 straight-line shifter for racing three-speeds. And the Super/Shifter, now with built-in reverse lock-out.

From Hurst/Schiefer, there's a selection of new rear-end components, including new Differential Gears and new Mark Torq gear marking compound.

There are more new Hurst products around the corner. And you can be sure that each will live up to the name "Hurst Performer."

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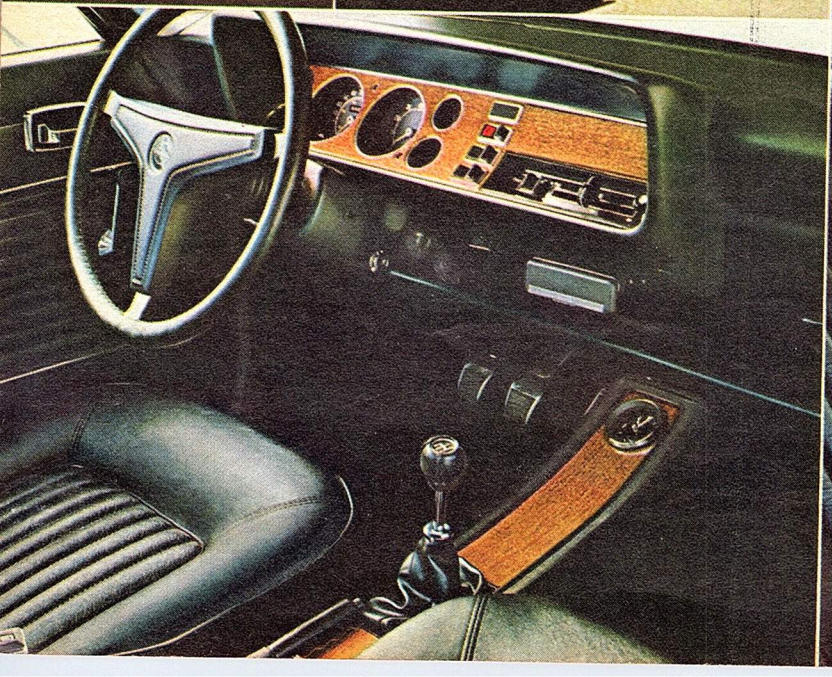
Capri Sport Coupe



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Capri.
The sexy European.
Now in a more passionate version.

It's one thing for a car to be sexy, European and *expensive*.

Capri made history by being sexy, European and *inexpensive*. And promptly sold more cars its first year here than any import ever had before.

Now Capri makes history again with a new, more passionate version—equipped with a fervent 2600 cc. V-6, and ready to take on cars costing twice the price.

But Capri's new V-6 isn't just a matter of what's under the hood. It's everything else that goes with it.

Blackout rocker panels and rear end trim. Chrome twin exhaust outlets. Styled steel wheels and fat radial tires. All standard.

Plus superbly sensitive rack-and-pinion steering.

Power assisted front disc brakes. And hefty beefed-up suspension.

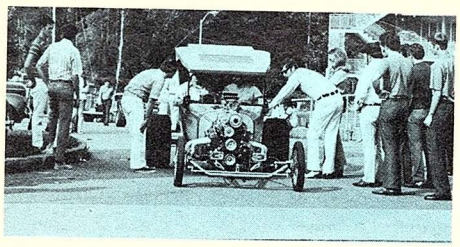
There's still more: A silky smooth floor shift. Full instrumentation including tachometer. Front bucket seats in soft vinyl that looks and feels like real leather. Full carpeting underfoot. A sophisticated instrument panel with handsome woodgrain effect. Room for four adults.

If you insist on spending extra, Capri can offer you automatic transmission, a sun roof, vinyl top, and decor group interior (illustrated).

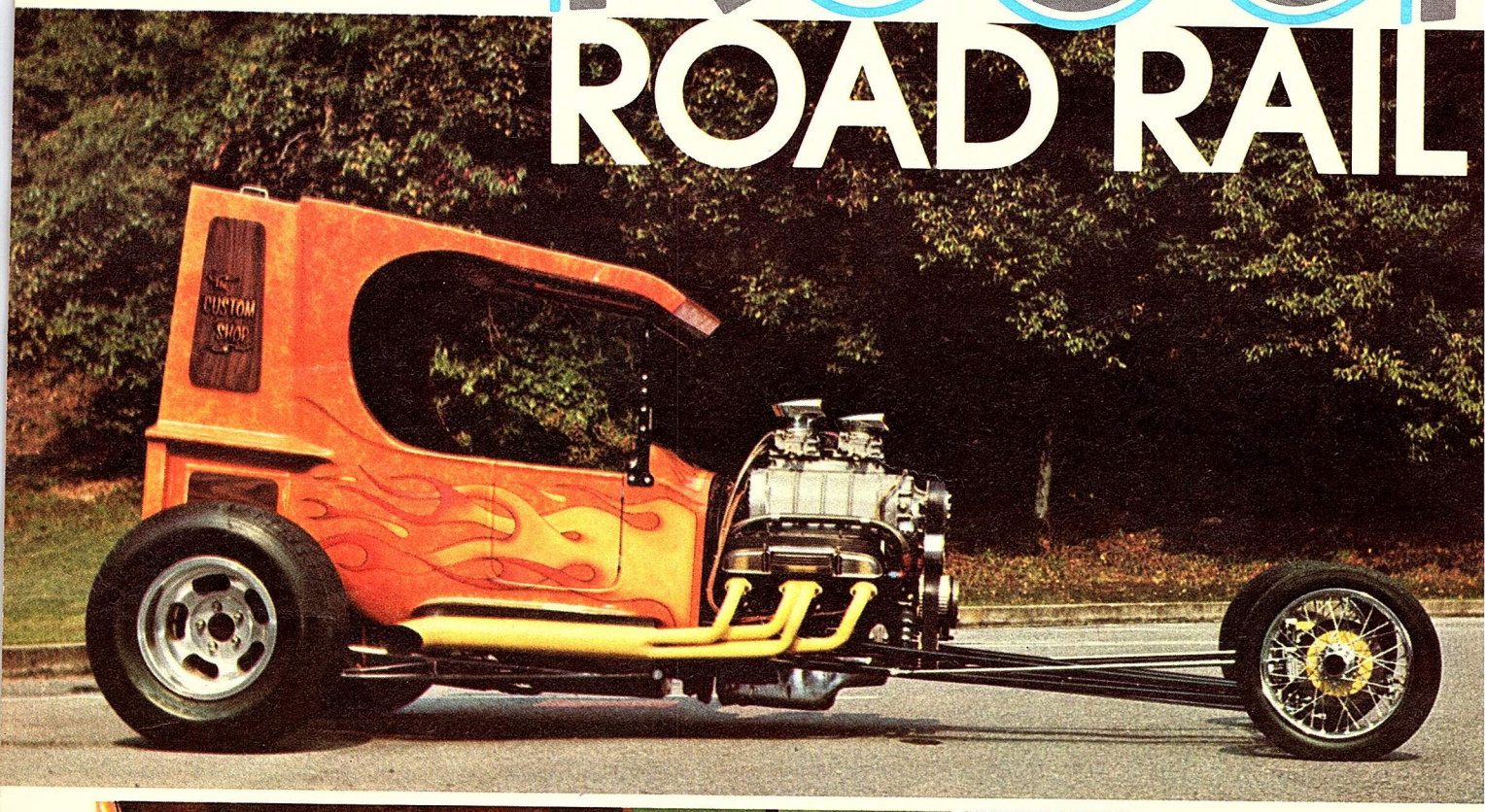
But Capri's option list is as short as its list of standard equipment is long.

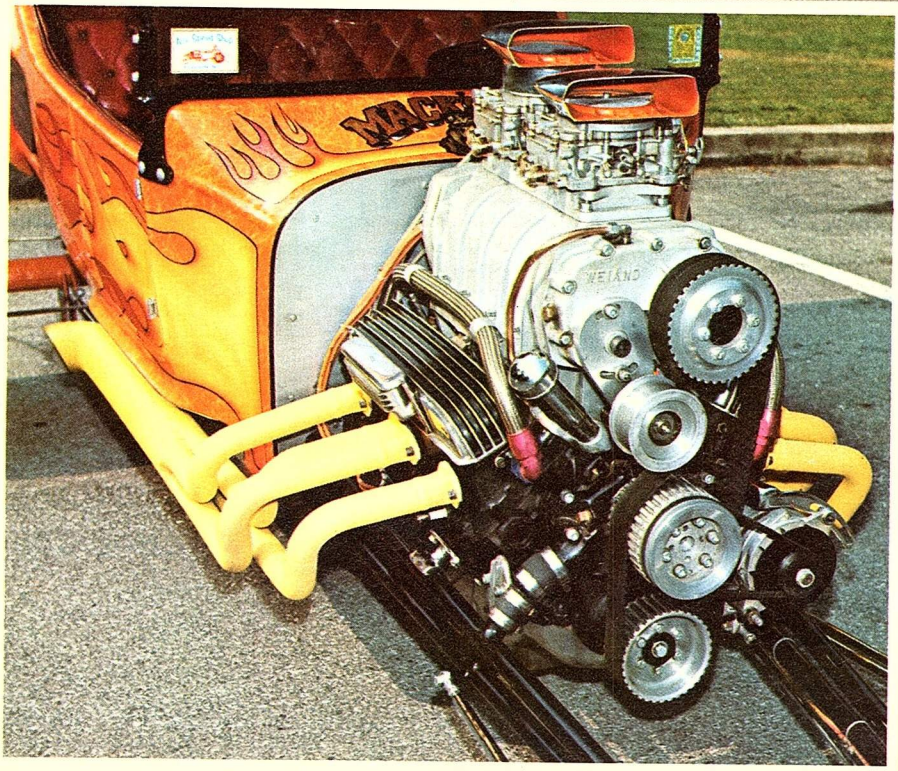
Sexy and successful. That's Capri. Add more passion and who knows what may happen!

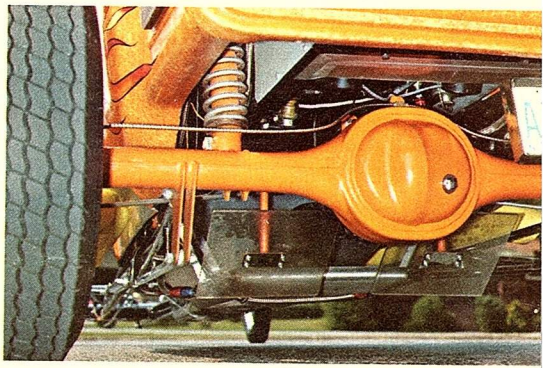
Imported for Lincoln-Mercury.

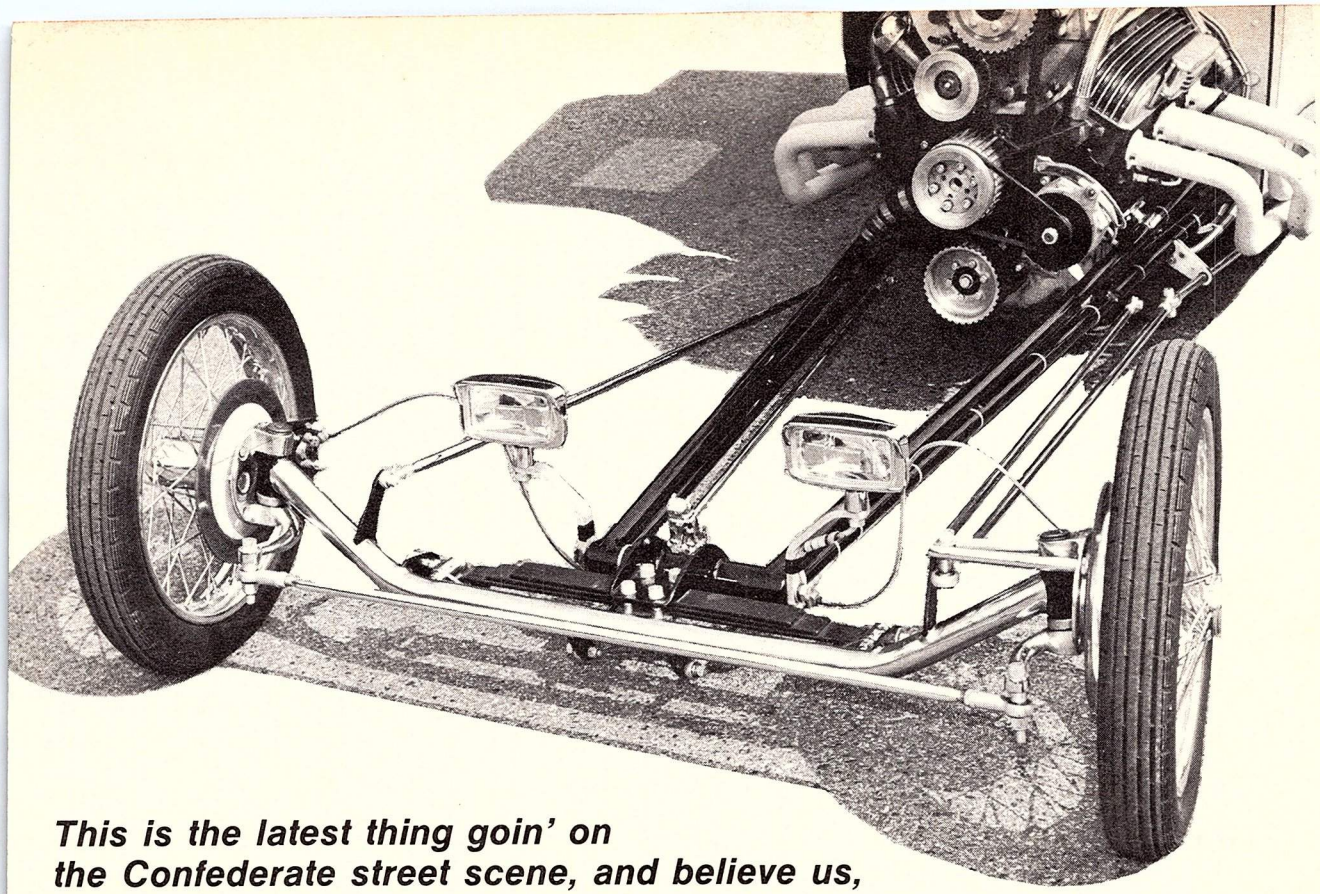


Rebel ROAD RAIL

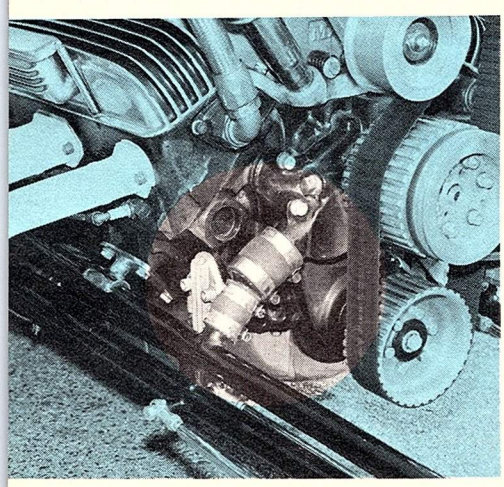


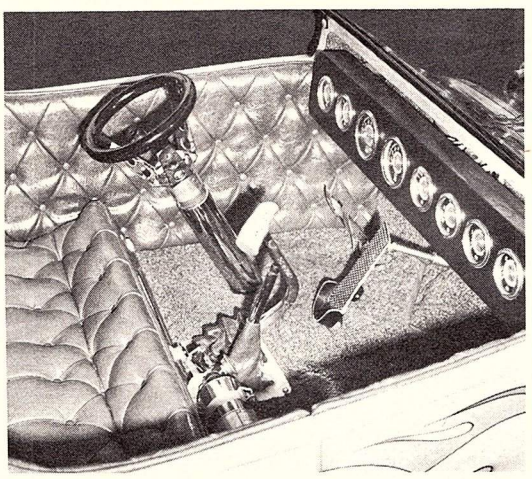


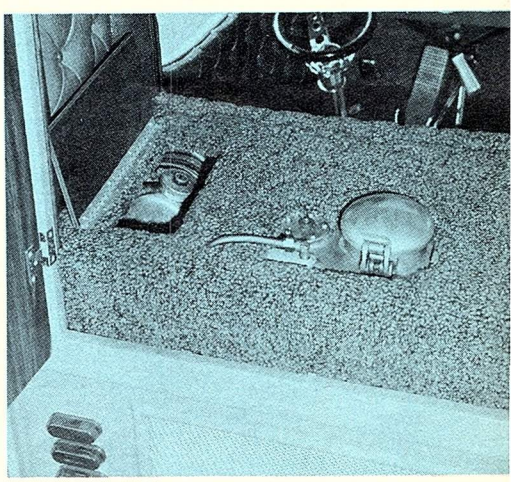




This is the latest thing goin' on the Confederate street scene, and believe us, Chuck Mack's sano hauler isn't limited to short runs







photography: Bud Bryan and Tom Medley

Rather than waiting until he could afford both a street machine and a fuel dragster, Chuck Mack, an artist, designer and custom car builder, settled on a plan that combined the best of both. He began by fabricating a digger-style chassis on a 130-inch wheelbase. He also formed his own front end, incorporating a six-inch drop tube axle, '40 Ford spindles, Airheart disc brakes, Hallcraft wires and 2.25 x 16 tires. Direction is dictated by a nine-inch-diameter dished Moon wheel via a '68 VW steering gear. Chuck custom-mounted a '56 Chevy rear end with 4.56:1 gears and 15.00 x 10 Goodyears on American mags. For power, Chuck selected a 350-inch '69 Chevy and fitted it with TRW pistons, Crane cam, oversize valves, 327/375-hp heads, handmade four-into-one headers, M/T manifold and dual Carter AFBs with a 6-71 GMC blower in between. It's driven 10% under against a compression ratio of 8.5:1. The Weber-clutched Muncie four-speed is fitted with a Hurst shifter. To heighten the digger appearance, Chuck mounted an aluminum Corvette radiator in the rear of the car. Coolant flows through the frame tubes. Two plexiglass spoilers beneath the car direct cool air through the radiator and out the perforated tailgate. Extra cooling is afforded by two 12-volt fans. A belly-mounted oil cooler is also utilized. The Cal Auto '23 'T' roadster/pickup body received a six-inch section job and a handmade C-Cab top with tinted sunroof. Finish is Omaha Orange with diamond dust cobwebbing and multicolor Metalflake flames. The floating dash and wood accent panels are actually walnut-grained Formica. Chuck did everything but the upholstery, which was stitched in brown and orange Naugahyde by Carl Turner. He credits Steve Burleyson of The Custom Shop in Charlotte with a big assist.

owner: Chuck Mack
Charlotte, North Carolina
car: '23 'T' C-Cab

A GREMLIN WITH THE HEART OF A JAVELIN. THE GREMLIN X WITH A 304 V-8.[1]

You are looking at the most powerful small car made in America. The Gremlin X with our optional 304 V-8 engine, the same engine that comes standard on our Javelin-AMX.

Other sporty subcompacts give you the impression of being zippy and tough, too. But no amount of fat stripes or hood scoops can hide the fact that the largest engine you'll get on any of them is 4 cylinders with a maximum of 140 CID.

To go with its V-8 engine, the Gremlin X also comes with a wide range of performance equipment.

Fat Polyglas™ tires. A beefy rear axle. Wide rim sport wheels. Big brakes. Rear torque links. Full-synchro floor-shift. Front sway bar. Special shocks and springs. A sports steering wheel. And 2 contoured bucket seats that won't help you go faster, but will make you more comfortable.

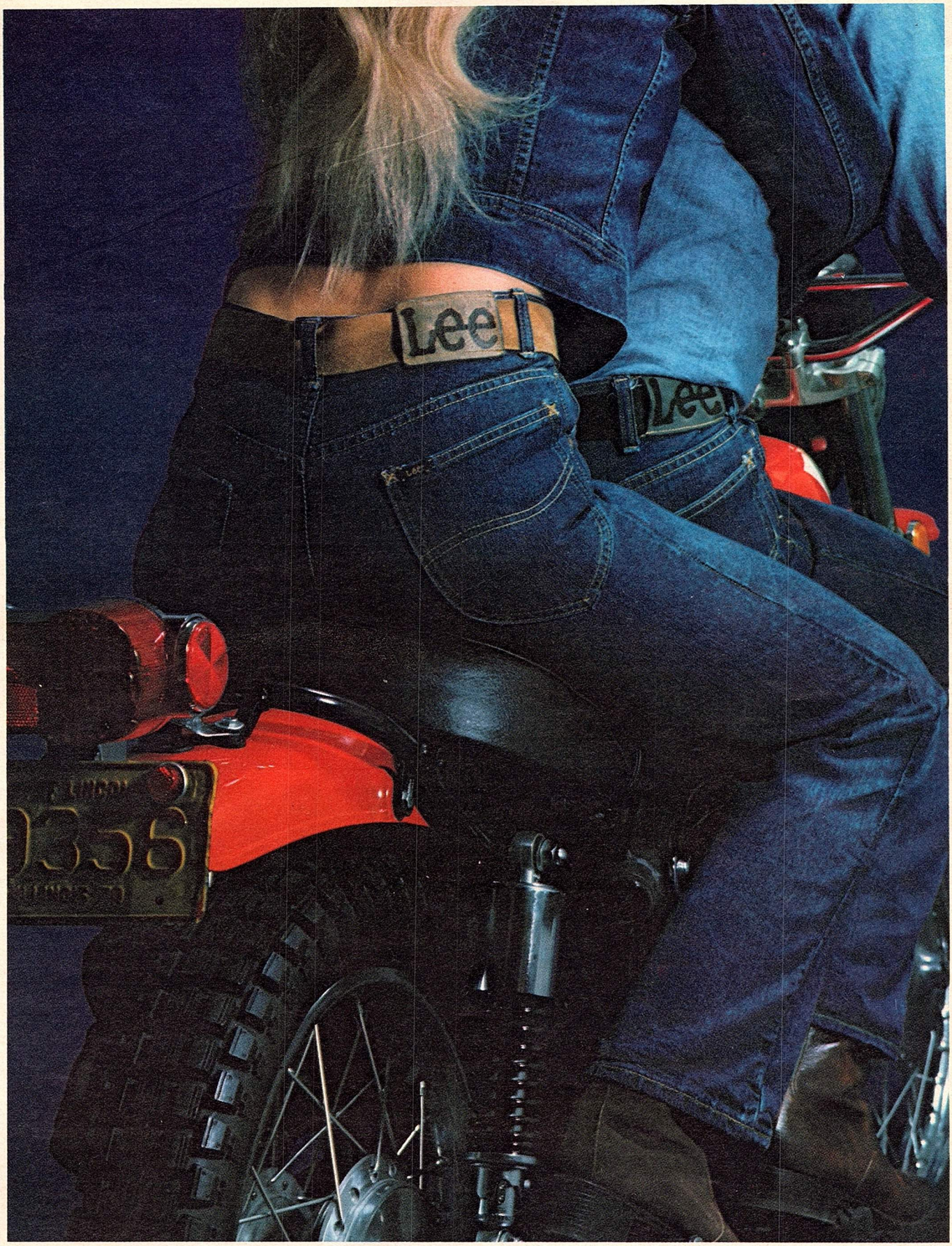
This year, the '72 Gremlin X also comes with something you wouldn't expect on a sporty small car. The American Motors Buyer Protection Plan.

It's a program that takes care of you after you buy the car. And nobody in the business has anything like it.

No matter why you buy the Gremlin X, though, your biggest joy in owning it will come on the day you can take it out for a drive and play King of the Road.

[1]Optional

American Motors



Lee Riders.

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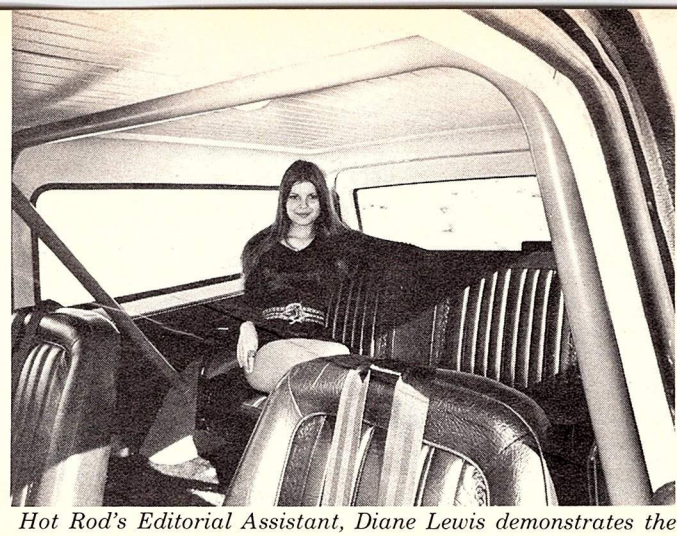
The Blazer really held on in the soft stuff. The paint job was a one-off, but there is a similar one available from the factory. Hickey added an electric winch which could save the day if two-wheel-drive Blazer ever had to ford a stream.



Hot Rod's Editorial Assistant, Diane Lewis demonstrates the generous leg room in the rear. The entire rear seat is removable for camping. The rollbar is also a Vic Hickey item which we'd strongly recommend for anyone going off pavement.

TWO-WAY BLAZER

The two-wheel-drive Blazer offers a split personality. During the week it's a highway hauler; on weekends it eats up the dirt

By Steve Green ■ The growing interest in off-road activity, combined with rapidly climbing sales figures for sports/utility vehicles, prompted us to undertake a short road test of a Chevy Blazer. Veteran off-road racer and accessory manufacturer Vic Hickey lent us a test vehicle which was outfitted with just about everything in his catalog. The base vehicle was a two-wheel-drive model, which at first might seem somewhat illogical, but there are several good reasons. The two-wheel-drive Blazer has independent front suspension and a link-coil rear suspension. Thus it affords a superior ride over its solid-axle-and-leaf-spring-all-around four-wheel-drive counterpart. It is also free of four-wheel-drive "steering wander." Equipping the vehicle with 8½-inch-wide Superior wheels and L60-15 Goodyear Polyglas tires gives excellent highway manners (with no off-road tire "singing") and still accomplishes the task of high floation tires in the sand. The result is a vehicle which, driven properly, will go just about anywhere a four-wheel-drive Blazer will go but is still a pleasant and well-mannered vehicle for normal driving, enough so that it makes an ideal dual-purpose second car for the family man or a first car for the active bachelor.

The drive train on our Chevy made driving enjoyable. The LS9 350-cubic-inch V8 is rated at 175 hp and was responsive and well-mannered. The transmission was the well-proven CSC 350 Turbo Hydro. Power was transmitted to the 3.73 Posi rear axle, and the combination resulted in about 11 mpg fuel economy.

The interior of the test car was equipped with the optional CST interior. Although an expensive option at $355, the seats were comfortable but a bit too upright. (This can be corrected with some washers or spacers under the mounting bolts.) Visibility was excellent, owing to the high seat and the windows on all corners. One of our few complaints with the vehicle was that access to the rear seat was poor; you have to tilt the entire right front seat out of the way to gain rear entry. The fiberglass top, which is a $313 option, was weathertight and rattlefree.

The base price for the two-wheel-drive Blazer is slightly under $3000; but if you'd care to add things like air conditioning, power steering, AM/FM radio and a potpourri of off-road equipment, then better brace your checkbook, because you can double that figure.

The two-wheel-drive Blazer is a compromise—but a good one. Its on-road manners make it easy for anyone to drive, and it will satisfy most off-road and camping enthusiasts. ■■

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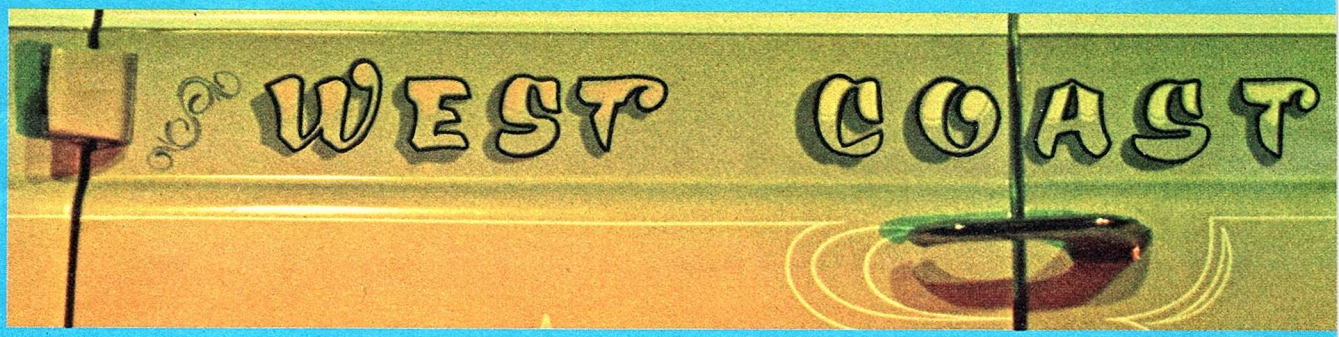
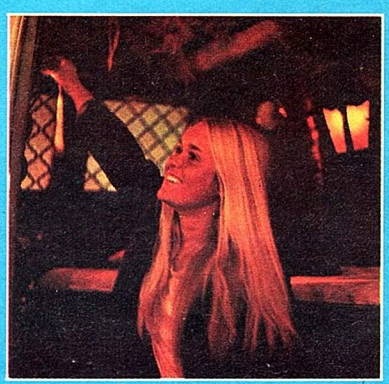
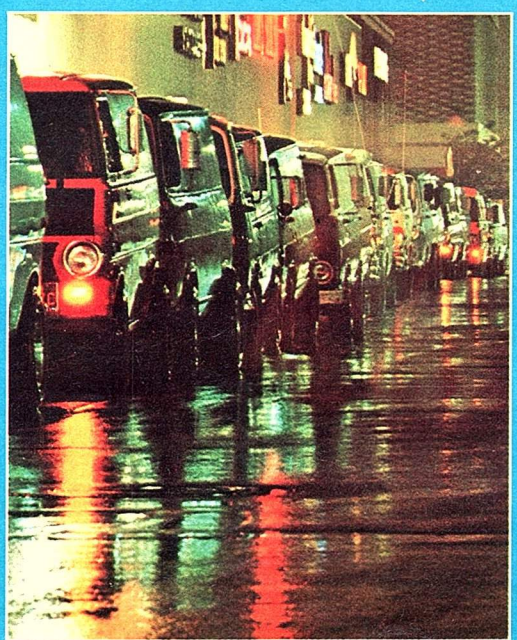
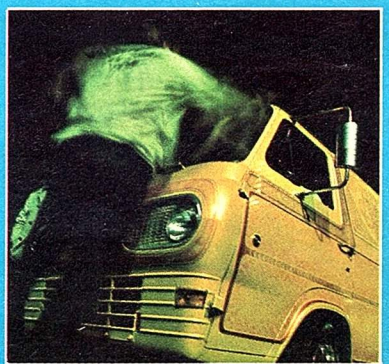
The Van movement continued to grow and generate interest. It has become a way of life for people all over America

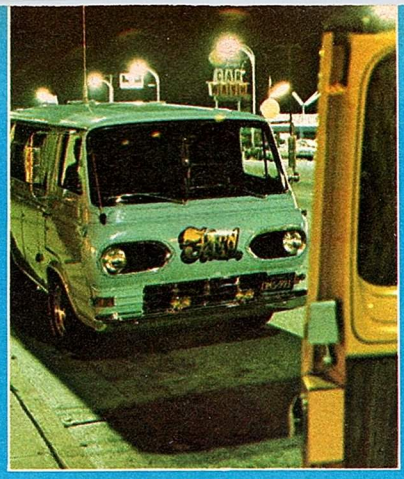


PHOTOGRAPHY BY:
Steve Green, Mike Brenner and Pat Brollier

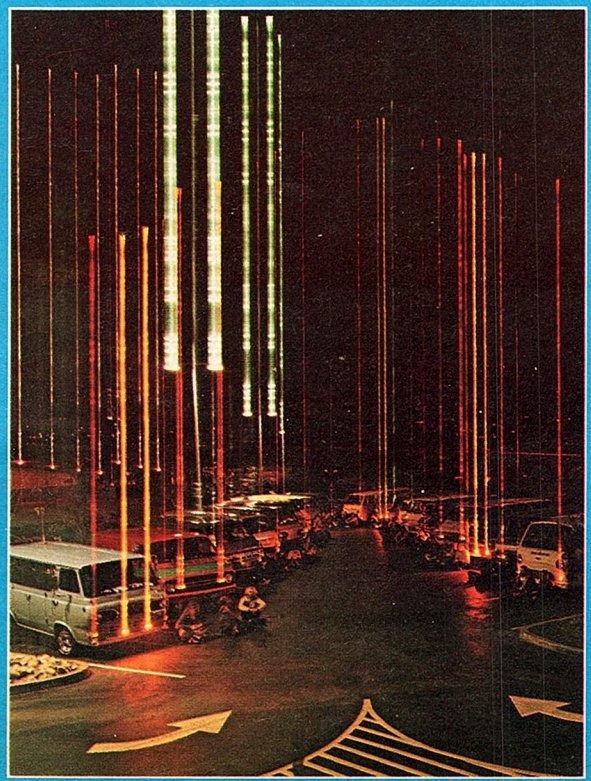








HOT ROD Magazine's first excursion into the wild world of West Coast Vans several months ago was followed by an avalanche of mail with requests for more information on these far-out vehicles. When our own Chevy Van stirred up another explosion of interest, we were convinced of the correctness of our belief that the Van phenomenon is not just another automotive fad. A van reflects the feelings and outlooks of its owners. Everything from the color and style of the exterior paint to the type of carpet on the interior floor can be individually chosen to express the exact sentiments of the man behind the wheel. The conversion can be made functional—for hauling bikes—or it can be a small-scale replica of a motor home, for the person desiring a maximum of mobility. Either way, the van is the ultimate in practicality, while at the same time being in the vanguard of automotive innovation. When you start your van project, you'll find that the vehicle is only a shell waiting to be completed . . . the framework for a wild experience. A lot of work will lie in front of you, but you will see that it is joyously rewarding. In the pages that follow, HOT ROD takes a look at some of the ways that you can "West Coastize" your wheels. No doubt these suggestions can easily be improved upon to fit your needs, as everyone's needs are different. You'll also see that you needn't spend a lot of money to have something unique—individuality comes from the decisions you make, not the amount you spend. In any case, you'll want to try your best, because the van reflects you. But be prepared for some long stares from the unaware as they drive curiously by in their four-door plain-Jane sedans. ■■



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Diary of a Converted Vanner.

A budget, do-it-yourself way to "Californianize" your van

By Steve Green ■ It all started about the time I began working on the West Coast Vans story that appeared in the August 1971 issue. I had been looking for a vehicle which would not only transport all the things that I get involved with — like bits and pieces for project cars, photo gear, dirt bikes and camping equipment — but would also be fun to drive and have room for friends. Being as deeply involved as I am in the world of wheels, I absolutely shuddered at the thought of owning something mundane and utilitarian. My awareness of vans quickly grew into unbounded enthusiasm as I continued my investigation of the West Coast van scene. It wasn't long before I realized that a van fulfilled all my requirements and I became committed.

My first step was to develop an overall plan, right down to the fine details, for personalizing my own van. Past experience had taught me that without a plan you frequently wind up having to redo things while still not achieving the exact result you'd hoped for. My overall objectives were to have a van that would easily convert from a motorcycle and equipment transporter to a California Movin' Van — complete with blacklite and deep shag carpeting. Once I got things planned, it wasn't too difficult to carry them out, but it did take a lot of time and patience.

Although I was in a position to buy a new Dodge, you can accomplish much the same result on a smaller budget with a "clean one-owner." (If the van has seen commercial use, an engine and running gear rebuild might be a good idea.) I ordered my Dodge Tradesman 200 with the 127-inch wheelbase and a 360-cubic-inch V8. Other options included power steering, power disc brakes, air conditioning, automatic transmission, 3.55 Sure Grip, deluxe seats, Junior West Coast mirrors and a few other bits and pieces. If you order a new van, be sure to go over the many options carefully.

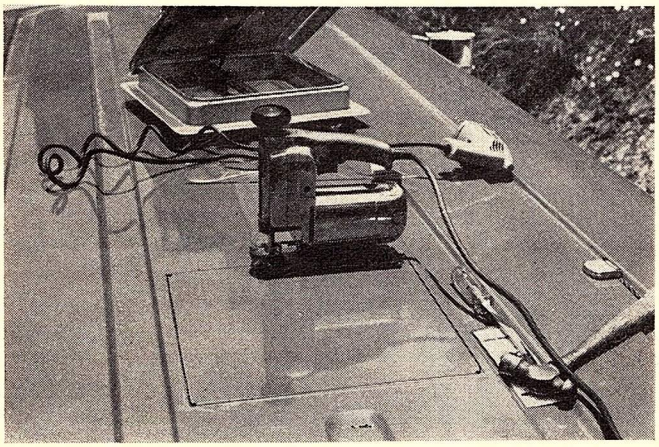
I managed to keep my van "pure stock" for about 15 minutes after I took delivery . . . that was the time required to get home. I then proceeded to take out my saber saw and cut a 14-inch-square hole in the roof, to the delight of my neighbors, who thought I was taking a qualifying pass for the Funny Farm. I assured them that this was all part of my great plan, which called for installation of a roof vent. An hour or so later, after I had cut out the carefully marked opening and drilled some holes for the sheet metal retaining screws, I plopped the vent into place. My neighbors were less frightened now, but they still kept a respectable distance lest I suddenly become violent.

This was all part of Phase I of my Van Plan: modification of the exterior. The next step was the addition of a little more color to the Burnt Orange factory paint. Close friend Associate Editor John Fuchs gave me a considerable amount of help with the van. We spent the better part of a day masking and sanding the Dodge at Dean Jeffries' paint and custom shop. When we were finished, Dean sprayed on the Go-Green stripe. He had already painted the bumpers to match the body color.

(Continued on following page)

My choice of colors is a bit controversial (see upper right photo on lead spread). You either like it, which many people seem to, or you can't stand it. My neighbors (I live in a very quiet neighborhood) were now convinced of my sanity . . . or rather the lack of it. One elderly lady did seem to enjoy the new paint scheme. "Mr. Green, at first I just thought we'd have to put up with a delivery truck parked on the block, but I see you've painted it so it will glow in the dark." No doubt she was praising me for my contribution to safer neighborhoods.

My plan for the interior, Phase II, was to add an extra pair of seats and still have room to haul a couple of dirt-racing bikes. I visited Al Hobrecht, who is usually making roll-bars at Roll Safe Bars in Sun Valley, California. In one Saturday's time, Al and I built a set of pedestals for some bucket seats and a bike rack which can be quickly removed to leave a flat, holefree floor. Since buckets are available in junkyards from about $25 up, this step needn't be an expensive one. If you get all the materials beforehand, any welding shop can weld them up for a moderate fee.



The roof vent installation was accomplished by drilling holes at the four corners of the outline and cutting with a saber saw. Add sheet metal screws and job is finished.

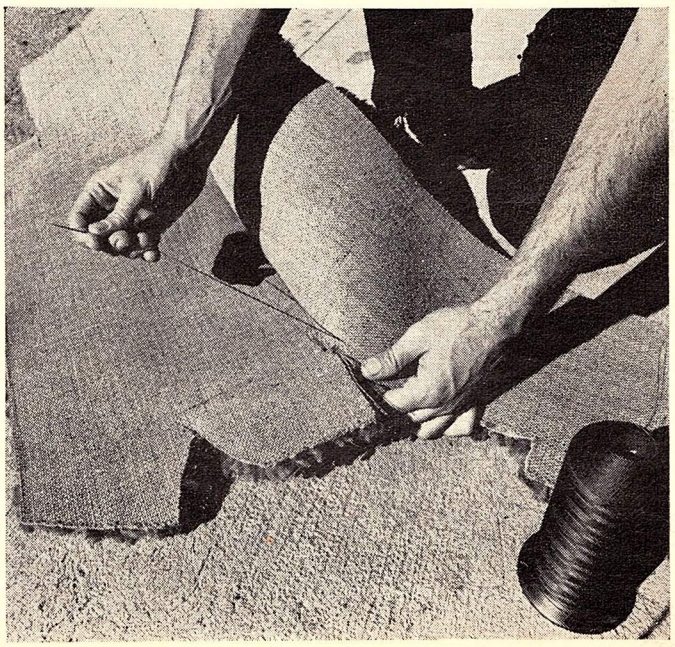
Insulating the floor, roof and walls of a van is a necessity. Aside from keeping the interior cooler in summer and warmer in winter, it *really* quiets things down; you no longer feel like you are inside an aluminum beer can rolling down a hill. Rather than panel the walls of my van, as is the current custom, I chose to cover them with shag carpeting, which serves both to decorate and to insulate. The floor was covered with padding, with extra strips added where there were ridges, to yield a flat floor. Over the padding, I put indoor/outdoor carpeting to serve as the basic "utilitarian" floor cover. I then cut out a piece of the shag carpeting to fit over the indoor/outdoor for my "California" interior. Covers for the fender wells and spare tire were easily cut out of the shag and sewn by hand. Since shag is so fuzzy, you can be off ⅛-inch here and there and it never shows.

Paneling the roof was the most difficult part of the conversion. I obtained ⅛-inch-thick real wood paneling, which is the thinnest available. I then used the cardboard headliner from over the driver's seat as a partial template and proceeded to cut and fit the panels over regular fiberglass roof insulation. Be sure to cut the paneling on the *back* side (it will prevent splintered edges on the side that shows); take your time and cut carefully.

At my local fabric shop, I found some material for curtains which matched the colors of my van. (Use cotton and polyester material, which doesn't fade like 100% cotton.) The curtains are very easily made by anyone with a sewing machine. The window curtain rods are the long spring-and-hook type found in any variety store, and the rod for the big front curtains was made out of a piece of ¾-inch do-it-yourself aluminum tubing.

From this point on, things were pretty much a bolt-on or a screw-in-place operation. I added a pair of Xantech fluorescent lights, one Xantech blacklite, a Motorola AM-FM

Carpeting is easily cut with a sharp kitchen knife. For large cuts, mark the back side of the carpet and use a straightedge. Wood panel adhesive is an easy and permanent way to secure carpeting to the walls or roof of the van. Large pieces are easily sewn by hand to make contoured covers for the spare tires and fender wells.



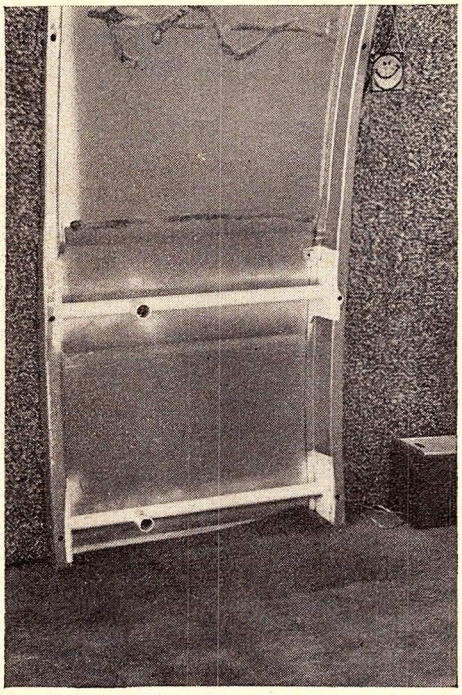
radio, a Stewart-Warner tach, a VDO clock and a Superior steering wheel. U.S. Mags and Formula 1 tires were obtained from Wesco Tire in Sepulveda, California. In the interest of safety (all kinds), I installed a fire extinguisher, a first aid kit and a burglar alarm.

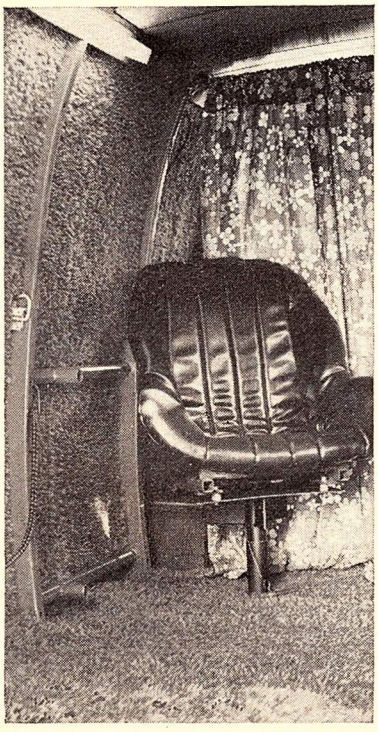
The cost of a van conversion can range from a few hundred dollars, the cost of mine, to several thousand dollars, as in the case of a professionally prepared interior. If you do the work yourself, the costs can be kept to a reasonable level. For example, the costs involved in my project were about as follows: carpeting, $100; glue for carpeting, $10; paneling, $25; fluorescent lights, $40; fire extinguisher and first aid kit, $15; FM-Multiplex radio, $150; materials for seat bases and bike rack, $20; wheels and tires, $325; steering wheel and kit, $20; and miscellaneous screws, pop rivets, paint and tape, $25. You can get a pretty good idea of what your ideas would cost by using the "plan ahead" technique and shopping around. $725.00

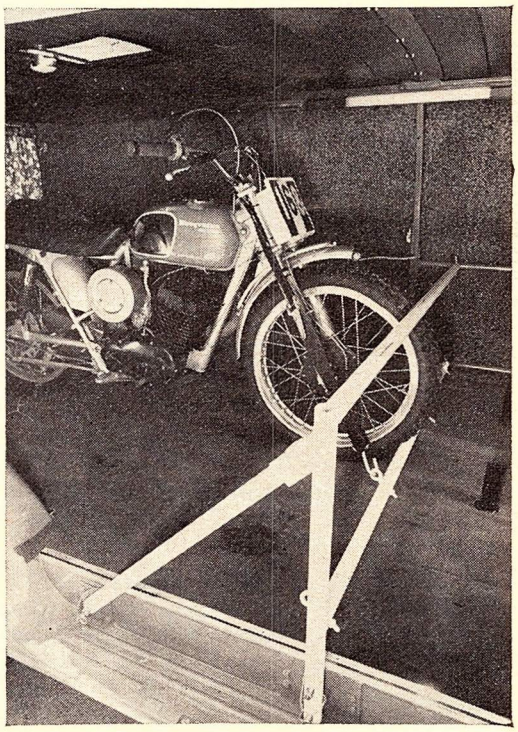
Having now driven the van in its completed state for several months, I feel the project was a complete success. All my goals were realized, and the van has performed flawlessly. Wherever I go, people stop me and ask questions about the van. It's obvious that the van movement is coming on strong. Most of the people interested are young, but there are some notable exceptions. Remember my neighbor, the little old lady? "Mr. Green, I was just admiring your truck, and . . . well . . . could I please see the inside?"

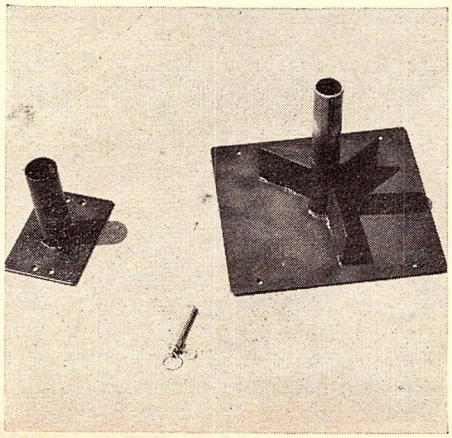
Truck on, Grandma. ■■

"California" interior (looking in from the rear) is perfect spot for camping or hauling a bunch of friends to the races. Note the paneled roof and storage cutouts in doors.







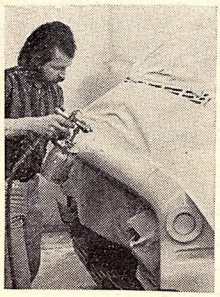


LEFT — Pedestals for bucket seats were fabricated from flat stock and 1½-inch and 1¾-inch tubing. Aircraft quick-release pins lock seats in position for truckin'. ABOVE LEFT — First step in installation of bike rack was to weld two bulkheads in place. They're made from 1½-inch tubing and positioned 21¾ inches and 3½ inches above floor level (just right for a 21-inch motorcycle wheel). The bars were then painted to match the van's vertical ribs. ABOVE — Carpeting was slipped in place and glued down. The exposed ribs also permit installation of many handy tie-downs. ABOVE RIGHT — The bike rack is held in place by quick-release pins. The left side of the rack plugs into wall-mounted bulkheads, and the right side is pinned to reinforcing plates bolted to step well. Diagonal brace detaches to allow flat and compact storage when rack is not in use. Installing rack and three bikes takes less than five minutes. There is ample room for bikes, swivel buckets and camping gear in roomy interior of 127-inch-wheelbase van.

photography: John Fuchs and Steve Green

Winner Take All

Keystone and Hot Rod are combining forces to offer the grandest prize you've ever seen



"Hey, Herm, didja heard about the great Keystone Giveaway?"

"No, man. What's a Keystone?"

"Hey, that's funnuy . . . what's a Keystone. Keystone is a manufacturer, man. They make wheels . . . you know . . . custom wheels, mags, that kind of good stuff."

"So what are they givin' away, a set of custom wheels?"

"Yeah, they're givin' a set of wheels away, all right, a '72 Dodge Tradesman-100 long-wheelbase van. That's the set of wheels they're givin' away."

"Wow, that's some set of wheels, but I'll bet it's one of those el cheapo vans with the six-banger motor and a three-speed on the column, right?"

"Wrong, man! Keystone is running the contest to end all contests, and they're givin' away the grandest prize you ever did see. That van's got all the trick goodies on it — 318 V8, automatic, power steering, power disc brakes. It's a class van, man!"

"Yeah, but how 'bout the sounds, man? What's it got for sounds?"

"That's handled! Motorola's one of the sponsors, so that van's gonna have one of those new Quadrasonic Tape Decks in it."

"You mean one of those four-channel jobs that produce those unreal vibes. Outasight! But whaddaya mean, one of the sponsors? Are there more?"

"You bet there are. Besides Keystone and Motorola, there are 14 other sponsors, and they're all giving sumpthin' away with the van."

"Yeah? Like what?"

"Well, the list is so long I almost don't know where to begin. Keystone's givin' the van (with a little help from Dodge) and a set of Rogue wheels, and Motorola's throwin' in the tape player — ya got that? Then comes Firestone with a set of Sports 500 skins and Schiefer with a ring and pinion — got that? ACCEL's puttin' one of their super ignition kits on it; you know, distributor, coil, wires, the works. Hooker's putting on some headers and mufflers, Hayden's adding one of their famous oil coolers, J.C. Penney's throwing in their grabbin' wood-rim A/FX steering wheel and some gauges, Air Lift's providing a set of air springs, TRW's givin' some of their Road-Hugger shocks and a set of ball joints, and Harmon Electronic's contributing a digital tach and one of their quarter-mile e.t. computers."

"Wow! That's some list, man! Is that it?"

"Yeah, that's all that goes *on* the van, so are ya ready to hear what's *in* it?"

"You're not kiddin', huh . . . there really is more?"

Sure, man. I wouldn't kid ya. I haven't told you about the motorcycles yet."

"Motorcycle? There's gonna be a bike inside?"

"No, man, not *a* bike — two bikes. Hodaka has given one of their outstanding 100cc B-Plus motorcycles, and Steen's has provided their Mini-Motocross model that's powered by the same great Hodaka 100cc motor. But that's still not all. Inside there'll also be a year's supply of oil provided by Valvoline and a year's supply of oil and gas filters provided by Fram. And to top it all off, the inside of the van also has a cool thousand bucks worth of tools provided by S-K Wayne."

"That's some outasight van. You're through, ain't ya?"

"Not quite, man. I forgot to tell ya about the custom black and gold pearl paint job that's gonna be laid on that baby by Don Goertz of Ontario, California. You oughta see that paint; it's double-tough, complete with flames, man — the whole bit."

"Hey, that really does sound like the grandest prize I ever did see. Is there anything else?"

"Yeah, one more thing. Who d'ya think is gonna be doing the work to get that baby all fixed up?"

"I'll play. Who?"

"The editors of *Hot Rod* Magazine, man, that's who. They're gonna take control of the project and see that the whole thing is built up just the way they'd build it up for themselves. They'll find a trick set of seats to put inside, and they'll get one of those pro-

fessionals to do up the interior just like they did on the *Hot Rod* Chevy last fall."

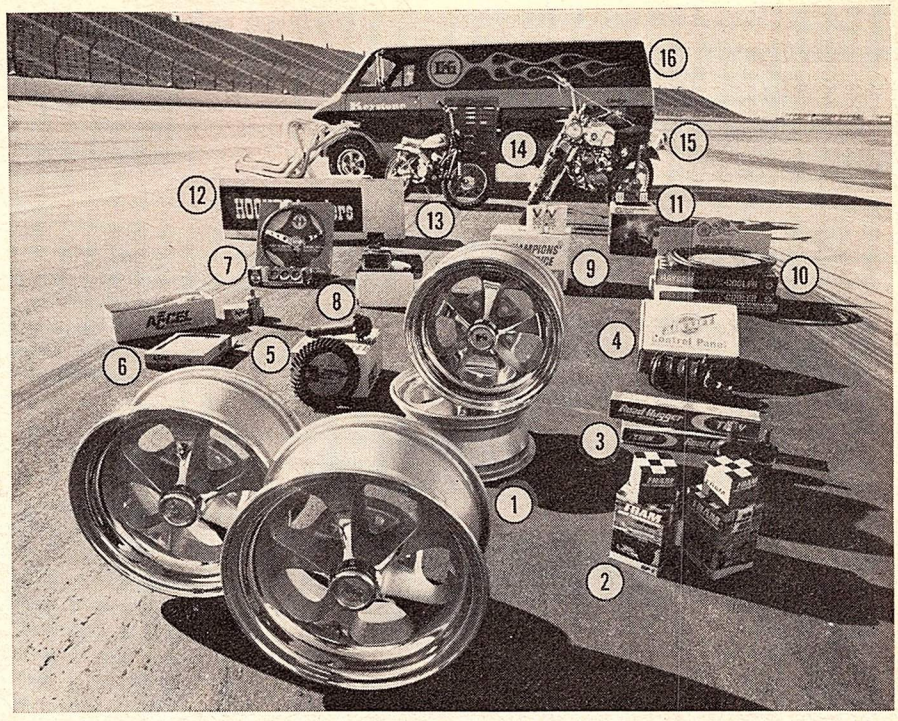
"Hey, man, that is really one outasight van. Whadda I hafta to do to win it, jump off the top of the Empire State Building?"

"No, man, that's the easiest part of all. All ya hafta do is hustle on down to your nearest Keystone wheel dealer and fill out an entry blank and send it in. The winner's gonna be picked in a drawing, and then in November he'll be flown to the NHRA Supernationals at Ontario Motor Speedway, where'll he'll receive the keys to the van and all the other goodies in front of 50,000 people. It's as simple as that. And there'll also be a bunch of other prizes — like wheels and jackets and stuff like that."

"That's fantastic. Where'd you find out about all this?"

"*Hot Rod* Magazine, man. The March issue has a story about it, on page 94. And the April and May issues are gonna tell ya all about what they're doin' to the van and how the work is progressing. That way, you'll be able to read all about it and watch it take shape over the space of a couple of months."

"Yeah? That sounds like a neat idea. I'm off to the newsstand to get a copy of *Hot Rod*, and then I'm goin' to my Keystone wheel dealer . . . 'cause I'm gonna win me a van! See ya!" ■■



The prizes are: 1) Keystone Rogue wheels, 2) Fram filters, 3) TRW shocks and ball joints, 4) Air Lift air springs and dashboard control panel, 5) Schiefer ring and pinion set, 6) ACCEL ignition kit, 7) J. C. Penney steering wheel and gauges, 8) Harmon digital tach and e.t. computer, 9) Valvoline oil, 10) Hayden transmission cooler, 11) Motorola Quadrasonic tape deck, 12) Hooker headers, 13) Steens' Mini-Motocross motorcycle, 14) S-K Wayne tools and chest, 15) Hodaka 100cc B-Plus motorcycle and last, but by no means least, 16) a Dodge Tradesman-100 long-wheelbase van complete with customized interior, custom flamed paint by Don Goertz.

Replacing that six in your Econoline with a robust V8 isn't as difficult or expensive as you may think. Lend us your ear and we'll show you how to make your . . .

van go for less dough

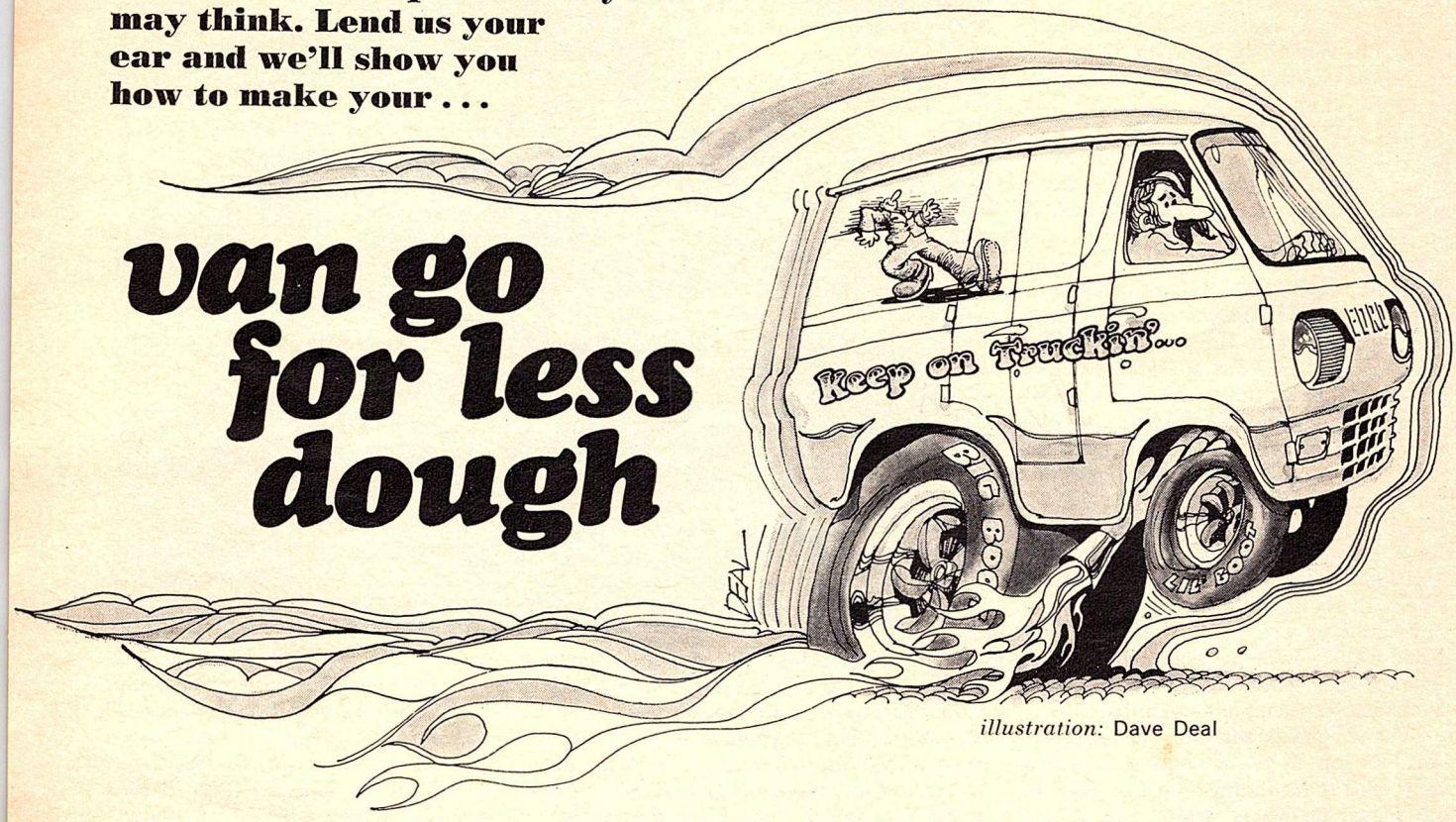


illustration: Dave Deal

By Tony Murphy ■ The thought of replacing the early Ford Econoline van's workhorse 170-inch 6 with a V8 has undoubtedly crossed the mind of anyone who has crawled up a grade or pushed a headwind with the stock and standard van. Around town, the small 6 gets the job done; but out on the highway, it has to scream to maintain cruising speed, and it falls far short on performance at the slightest sign of a hill. A small-block V8 Ford swap will change all that, and it is easier and less expensive than you might imagine.

A 260- or 289-cubic-inch Ford small-block V8 is a natural for several reasons: Both are compact enough to require only a minimum of sheet metal work on the engine cowling, both have enough muscle, even with a two-barrel carburetor, and they're plentiful enough to be found in most any wrecking yard. The two-barrel 260 is the low performer of the small-block family, and yet it still develops 165 hp, compared to 100 hp for the 6, and it grinds out considerably more torque. There are various 289 packages, developing anywhere from 200 hp on up and reaching over 300 lbs.-ft. of torque, compared to 158 for the 6.

Basic dimensions of the engine compartment are the same, from the first Econoline through the 1964 models. In 1965, the larger 240-inch 6 was offered as an option and required a larger engine cowling. The 1965 model is probably the best candidate for a swap, since the vehicle used the big Ford rear end and transmission. Until 1965, all vans, except those equipped with a heavy-duty package, used a Falcon rear end and transmission. This rear and trans are passable, but if one of the more powerful small-block V8s is installed, the rear end strength can become marginal. Also of advantage with a 1965 model is the fact that the 240-inch 6 is mounted on a crossmember, while the 170s are attached to cantilever arms running from each side of the block to mounting points on the underside of the frame rails and the outermost portion of the underbody. In practice, these arms have been known to break off under hard usage with even the lighter weight of the 6; they're out of the question for the heavier (by about 60 pounds) V8.

The crossmember used with the 240 6 is the obvious answer for any V8, since it is a bolt-in in all the earlier vans, and attaches to the same mounts as the cantilever arms. If that's not enough of a break, the V8 engine mounts are fabricated for the block. These two mounts and a couple of pieces of ¼-inch angle iron, to provide additional support for the outer ends of the crossmember, are the extent of the fabrication required for the swap. There are a few modifications to throttle and clutch linkage, but you'll have to look a long time to find an easier or faster swap.

Locked on the idea of a small-block Ford V8, the next decision is what transmission is best suited to the installation. The choice will hinge on two things: the year of the engine to be used and the year of the van into which it will go. If the engine is circa 1963-'65 with a five-bolt bellhousing, the easiest route is the three-speed manual that's standard equipment in all but the 1965 vans. The only modification required is the replacement of the input shaft with one out of a 1966 Mustang equipped with a 200-inch 6 and manual three-speed. The existing short input shaft will not reach the pilot bushing nor fit the splines of the larger V8 clutch disc. The new shaft has Borg-Warner parts No. WT 287-16L, and is available over the parts counter.

Later V8s with a six-bolt bellhousing block are a bit of a problem, since they will not bolt up to the transmission in pre-'65 vans. The 1965 van three-speed, or an equivalent passenger car version with the van tail housing and output shaft, is a must.

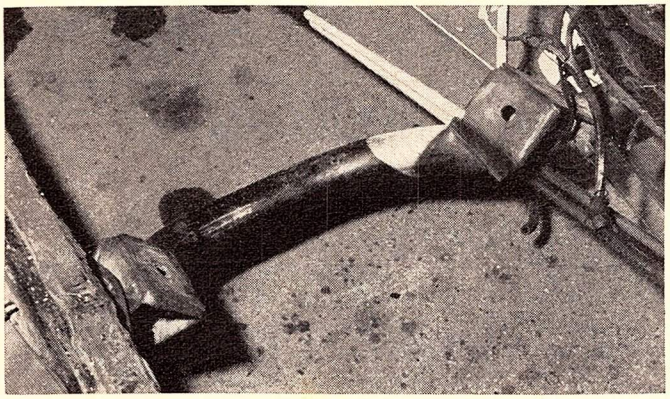
Four-speeds present a similar problem. There were some offered in pre-'65 vans, but they must be used with the five-bolt bellhousing block. Later four-speeds that would easily adapt to the six-bolt block have no facility for a rear mount, so one must be fabricated.

If you have to have an automatic, it will require a little extra mount fabrication if an older two-speed automatic is installed. The best bet is a 289 engine with a three-speed automatic, since there is a short tail housing and output shaft available that will enable it to bolt to the existing rear

mount. The choice, however, is entirely up to you.

Now bolt the engine to the transmission of your choice and you're ready to go. The engine will be a snug fit in the engine compartment, and it will slip in a lot easier with the exhaust manifolds off. Before they can be reinstalled, there's need for a little trimming on the floor pan for clearance, but that's better done after the engine is in place, to avoid cutting too much.

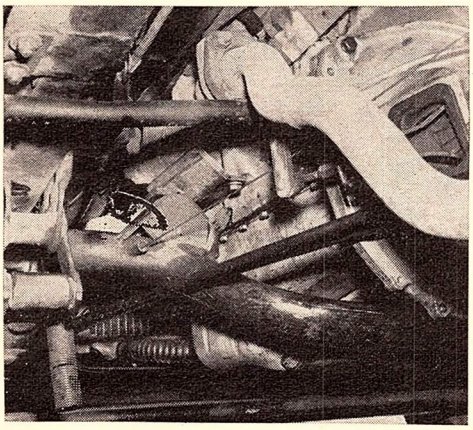
Once the engine and trans are lowered through the hole in the floor, the rear mount on the transmission can be bolted to its hanger. On some models, there are two holes in the hanger, one above the other; and the transmission is better bolted to the top one in order to get the front of the engine down so the carburetor is level. As it is, there is only room for a ½-inch rubber mount between the front crossmember mounts and the new engine mounts.



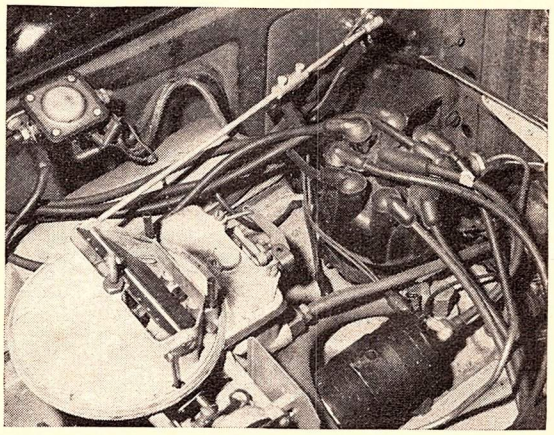
With the engine bolted in place, about the only other major concern is the generator or alternator mounting. If the engine is a later one, it will be equipped with an alternator that will be beneath the floor level and out of the way. If, however, the engine has a generator mounted to the right side, it must either be moved down below or a suitable hole cut in the engine cowling. We used a 260 engine with a generator and built an aluminum cover to enclose it. Either way involves about the same amount of work.

The 260 gets by just fine with the stock radiator, but larger engines might suffer from overheating because of the radiator's small core. The shift linkage, as mentioned, bolts right up; but the clutch throwout arm between the engine and the frame must be shortened by about an inch, since the V8 is wider at this point. Throttle linkage is a bit of a problem, since the pedal is far in front of the engine and any rods or linkage must pass by the radiator to reach the carburetor. The existing rod runs down the right side of the engine, and the carburetor throttle shaft is on the left with the new engine. The existing rod can be relocated on the left side, but a pivot arrangement must be mounted on the front of the engine to transfer the throttle motion back to the carburetor (see photo).

Now all that remains is to bolt everything where it belongs and replace the engine cowling. An exhaust system to your liking can be installed and you're ready to go. But as you'll soon discover, you're not going to go any faster than before unless the rear end gets a different ratio. About 3.00:1 is ideal. The engine will pull a higher gear, but the shape of the van is susceptible to head winds, and the 3.00:1 is a better all-around choice. It's Vantastic! ■■

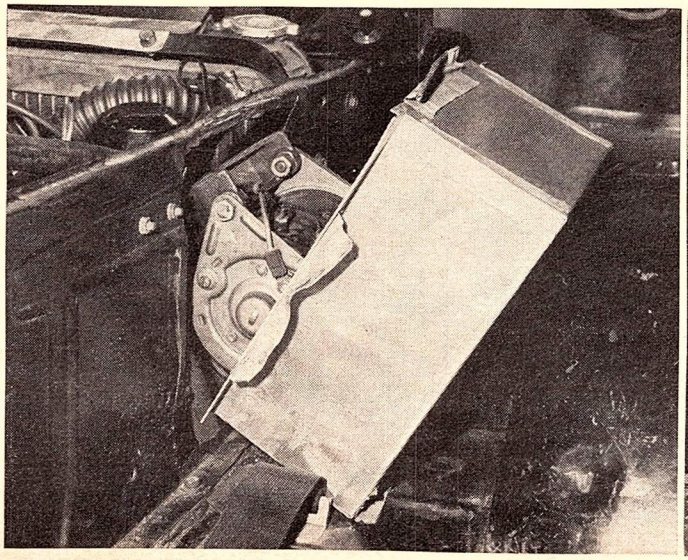


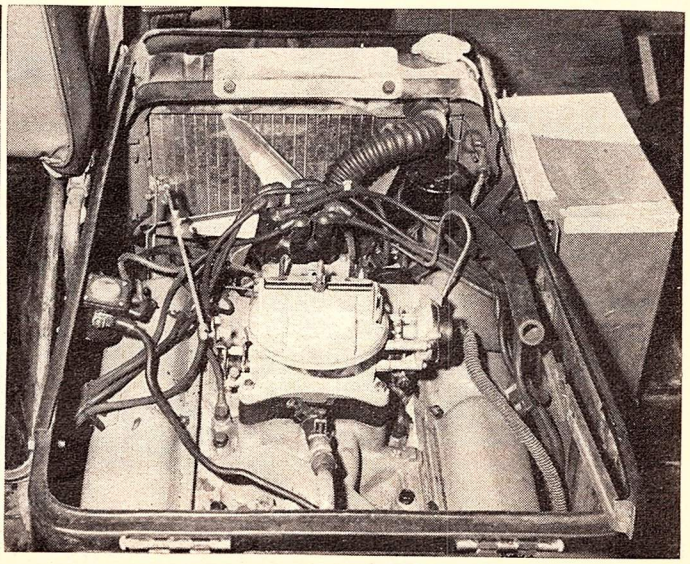
ABOVE — Crossmember from '65 Econoline bolts to existing mounts in early vans. Engine mounting pads can be used as is. LEFT — Two angle plates must be fabricated to form the engine mounts. Clutch throwout arm between block and frame is shortened two inches. RIGHT — The throttle linkage pivot mounts onto front of left head. Radiator is stock.

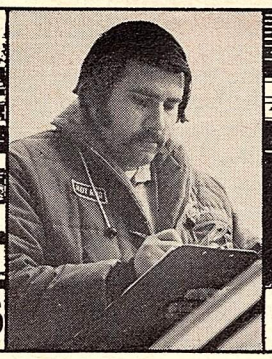


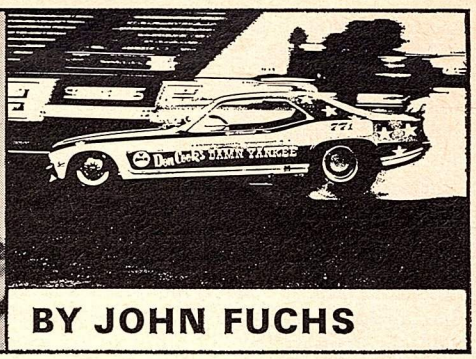
The V8 is a snug fit, but worth the effort. Performance is way up, noise level's way down. Stock radiator keeps the temperature in line with a bit of help from fiberglass flexy fan.

Biggest headache of swap was in fitting the generator within existing cowling. Easy way is to fabricate a cover and mount the generator in space just behind the passenger seat.









JUST FOR HOTS

BY JOHN FUCHS

6.17s BY SNAKE, WIEBE

Prudhomme wins quickest race ever

Long Beach, California — The Top Fuel final of NHRA's Grand Premiere Meet at Lions Drag Strip was a classic drag racing confrontation: front-engined dragster versus rear-motor model; a Donovan 417 all-aluminum early-model hemi versus a Keith Black cast-iron late-model hemi; "Kansas John" Wiebe versus Don "The Snake" Prudhomme. Both men staged carefully, momentarily restraining their 1500-horsepower engines. The light turned green and the race was on. When the smoke had cleared, the winner of the quickest drag race in history was Don Prudhomme, recording an e.t. of 6.174 seconds at 235 mph, while loser Wiebe stopped the clocks in 6.175 seconds at 236 mph. Lions regulars attribute the fantastic performance to the dense ocean air that once in a great while drifts over the track late in the afternoon, as the fuelers weren't the only ones cutting the fat numbers. In the Funny Car final, Gene Snow's 6.54 e.t. bested Bobby Rowe's 6.55 in Roland Leong's Hawaiian, while Gene Adams singled for the win in Competition with a 6.93 at 200 mph in the Adams & Enriquez Jr. Fueler. The 1972 drag racing season has opened!

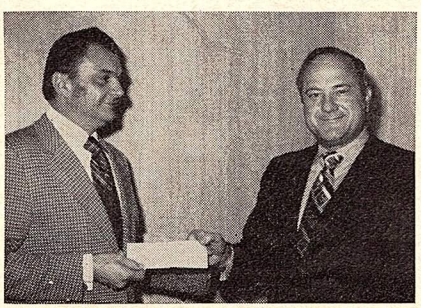
M/T PREVIEWS '72

Mickey Thompson's '72 racing stable includes a new Vega driven by Henry Harrison and a Pinto driven by Dale Pulde. Both will be powered by Ed Pink Hemis.

Keith Black and Milodon announce lightweight motors

On the heels of the successful introduction of the Donovan 417 comes the unveiling of plans by two of the West Coast's leading drag racing firms to build their own all-aluminum wet-sleeved engines. Milodon Engineering Company in Van Nuys, California, and Keith Black Racing Engines in South Gate, California, both announced that they are working on replacement engine blocks for Chrysler's late-model 426 Hemi. Both firms plan to modify extensively the Elephant motor's oiling system. Both will be using centrifugally cast chrome moly steel cylinder liners, and both are hoping to have working prototypes by spring or early summer.

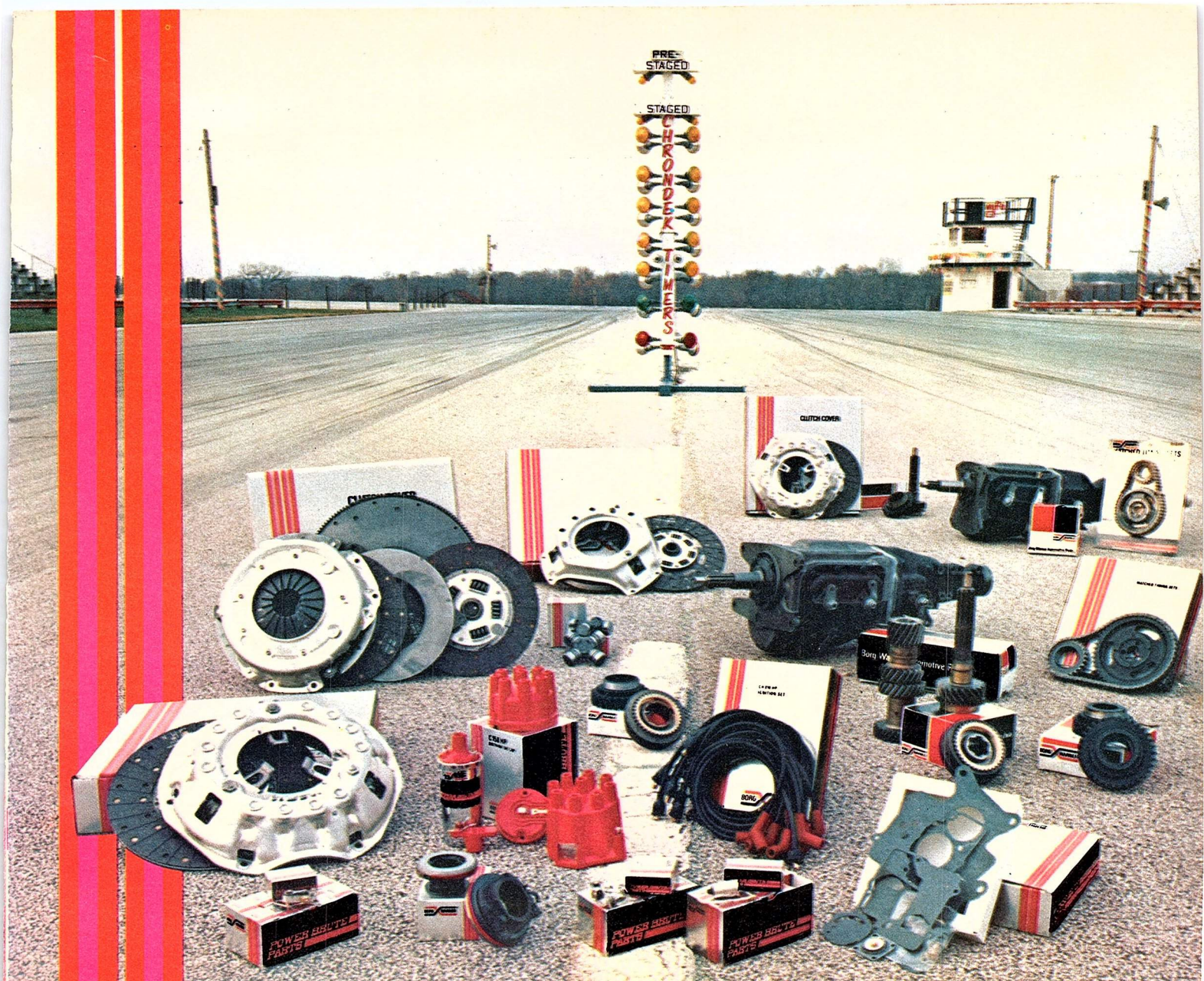
In addition, both firms have introduced other products designed to aid the effort to reduce weight in Top Fuel cars. Keith Black is offering aluminum main caps and rocker stands that together will save 13½ pounds, while Milodon is offering a new aluminum oil pump and oil pan that should shave another 10-12 pounds off the current weight of the 426. Sid Waterman has also jumped into the arena with an offering of aluminum main caps of his own.



AHRA Prexy Jim Tice (right) handed George $10 and became one of the first to join the Hurst Performance Team.

BREAKING LOOSE...

CHRYSLER CORP. confirmed the rumors that they will be making another batch of 426 Hemi aluminum heads shortly. No date or price is available, however . . . **GENE SNOW** and **JAKE JOHNSTON** will have new **LOGGHE** cars this year, and both cars will be sponsored by **REVELL**. . . . **TOM "THE MONGOOSE" McEWEN** will have two new cars himself this year. His digger will be a **GARLITS** chassis, and the Funny Car will be a **BUTTERA**-built machine. Both will feature **RAM-CHARGER** power . . . **VINCE ROSSI** is coming out of a several-year layoff to debut a wedge-shaped streamlined Top Fuel car. The **TOM HANNA**-designed car is built by **ROY FJASTAD**, wrenched by **JACK EWELL** and driven by **BILLY TIDWELL** . . . And speaking of streamlined dragsters, **"BIG DADDY" DON GARLITS** expects to debut his fully enclosed rear-engined digger in March. The wheelbase will be about six feet shorter, and the overall length of **GARLITS'** new creation will be about three feet shorter than his current car. If this keeps up, we'll need a program to tell the diggers from the Funnys . . . Another **REVELL**-sponsored machine is the new Demon of **WHIPPLE & McCULLOCH** named Revellution. The Indy-winning 'Cuda will continue to do battle, with the '71 Winternationals champ **BUTCH MAAS** behind the wheel. . . . The first Pro-Series race at **OCIR** produced some exciting action, with **"KANSAS JOHN" WIEBE** taking TF honors while **GARY BURGIN** took the FC title in the **BRASKETT & BURGIN** Vega . . . **"BIG JOHN" MAZMANIAN'S** 'Cuda, with **MIKE SNIVELY** driving, and **JIM DUNN'S** 'Cuda experienced fires in the lights, but both cars should be back in action before very long. ■■



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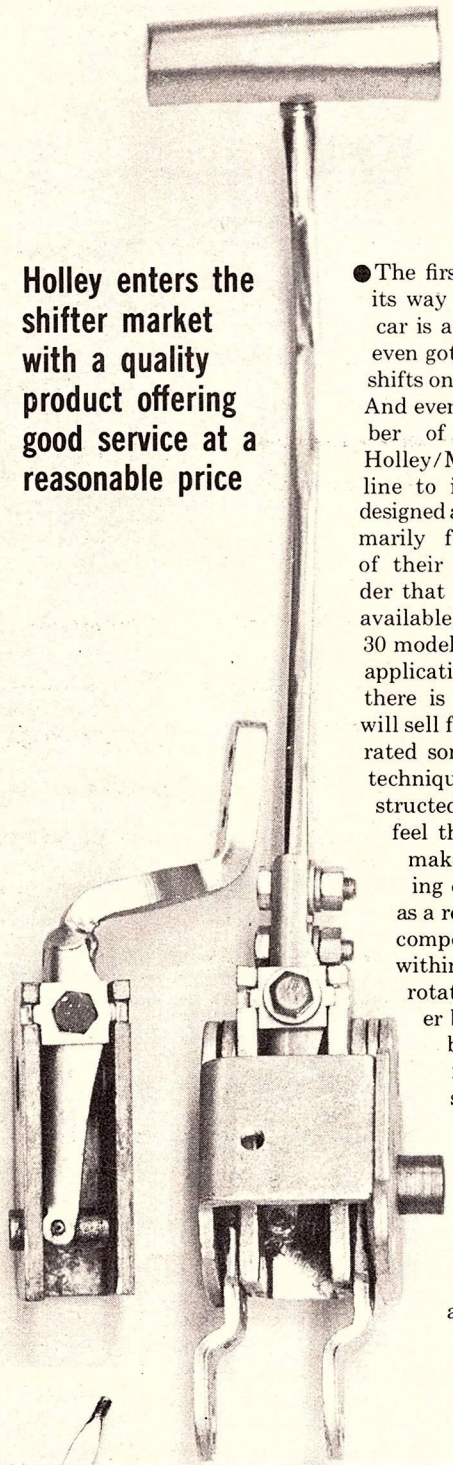
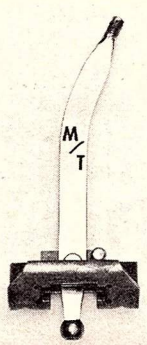
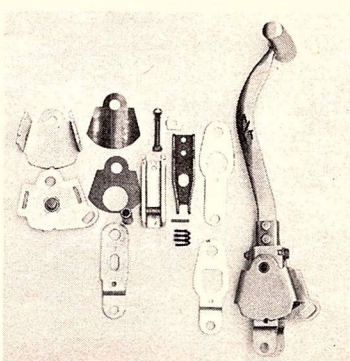
HOLLEY'S NEW STICK



Holley enters the shifter market with a quality product offering good service at a reasonable price

●The first speed equipment part that finds its way onto a "perked-up" street or strip car is an aftermarket floor shifter. Detroit even got into the act by offering OEM floor shifts on many of their performance models. And even though there were already a number of aftermarket shifters available, Holley/MT recently expanded their existing line to include shifters. Holley/MT has designed and engineered their new shifters primarily for street application. The price of their four-speed shifter falls well under that of full-competition units currently available, listing for about $55. In addition to 30 models that fit all the popular four-speed applications and 12 models for three-speeds, there is also a special VW shifter, which will sell for around $20. Holley has incorporated some very interesting manufacturing techniques to enable them to offer well-constructed shifters at reasonable prices. They feel that close manufacturing tolerances make the big difference in the actual working characteristics of their shifters, and as a result, the internal fit of the working components of the shifters are held well within allowable limits. Even the center rotational bolt that attaches the shifter body to the transmission mounting bracket is designed to keep the shifter mechanism secure and tight so that shifting levers are maintained in proper relationship during operation. Quality products for low prices are hard to find in this day and age, but Holley/MT has again baffled the barrier by engineering a product that gets the job done and on which they are proud to put their name. ■■

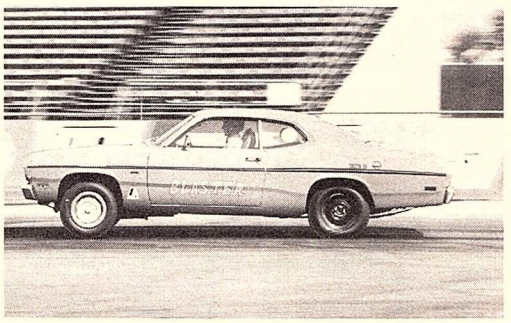




The photo above shows various shift handle positions. LEFT—Also included in the new Holley M/T line is a VW floor shifter. RIGHT—This is an exploded view of the working components.

SPEEDLETTER DUSTER

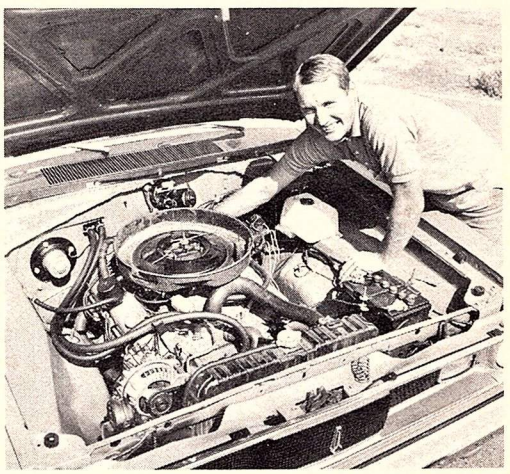
Blaine Anderson got his 340 Duster into the 12s for less than $300



We receive lots of letters, but Blaine Anderson's really caught our attention. It said, "My 340 Duster three-speed cost less than $3200 out the door, the modifications cost less than $300 and the car runs in the 12s."

The car has been equipped with a set of Jardine headers, a Crower blueprinted cam and a Lakewood bellhousing. Dick Thomas of Garden Grove, California, recurved the distributor (initial advance comes in at 1000 rpm with maximum advance of 12 degrees in at 2200 rpm) and gave the engine a supertune. A set of 4.30 gears and J.C. Penney slicks rounded out the package.

We asked Blaine to meet us at OCIR so we could check out his claim. Our strip session proved Blaine correct. A best run of 12.98 at 106.75 is quick in anyone's league. And don't forget, this is an insuranceman's delight, three-speed-equipped Duster 340. The days of the inexpensive supercar may still be here . . . you just have to look a little harder. ■■



Blaine Anderson has surprised quite a few owners of big-block supercars at Orange County Raceway bracket races.

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HERE'S ALL YOU DO: Pick up your free entry form at your nearest automotive store or speed shop. Entries must be postmarked by midnight, September 30, 1972. Drawing to be held October 16, 1972. Winner need not be present, but must have valid driver's license and be resident of Continental U.S.A. Void where prohibited by law.

Send $1.00 for big new 1972 Keystone catalog and racing decals: **United States:** Keystone Processing & Engineering Co., Inc., 1333 South Bon View Ave., Ontario, California 91762. **Canada:** Keystone A & A Industries Ltd., 785 Alderbridge Way, Richmond, B.C., Canada.

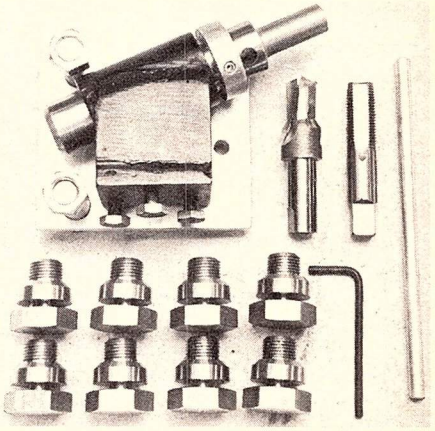
Getting the Right Slant

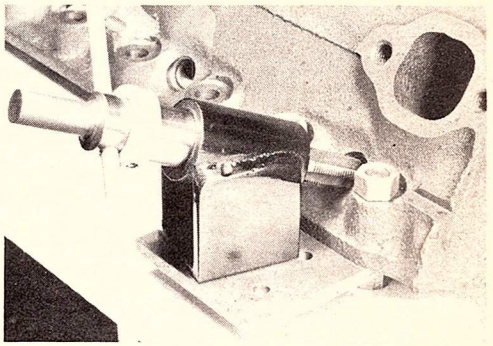
Update your small-block Chevy heads with an inexpensive, easy-to-use kit

• It's difficult to find a good-running modified small-block Chevy running without the new slant-plug heads. Some invested and purchased the new castings, while others who just couldn't afford the cash outlay had their present ported and polished heads reworked for the angled 10mm spark plugs and accompanying better flame propagation. There are currently many head modification shops who do the work, and the price varies from $80 to $125. That's not bad if you happen to be in the area, but for those guys located away from the metropolitan areas, it requires packaging, shipping, possible damage during transit and a lot of down time. Additional down time could result if one or both of the heads were damaged during the season, and then you start all over again with the packaging, shipping, etc.

Dunlop Engineering, located in Cleveland, Ohio, has developed a new slant-plug installation kit that eliminates all these worries, since you can now do the job at home. The kit comes complete with threaded plugs (to fill the original spark plug holes) which have shear-off hex heads that break off with the proper torque. Also included is a drilling feature that bolts directly to the head and is used to locate and drill the new slanted plug holes. The exact depth of each hole is controlled by a collar stop located on the drilling arbor. The fixture also serves as guide to tap the new holes for 14mm spark plugs.

The complete operation is quite easy and takes little time. Additional plugs are available for $15 a set, so you make the kit pay for itself by doing more than one set of heads. The kit sells for $60, and that's cheap, considering you can pick up possibly 15 horsepower and have the advantage of making money if you do enough heads. ■■





ABOVE RIGHT—The complete installation kit is shown here. Additional plugs are available so that more than one set of Chevy heads can be modified. RIGHT—The jig guides the drilling and tapping of the new slanted plug hole.

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...and blew Miss Muffet's doors off

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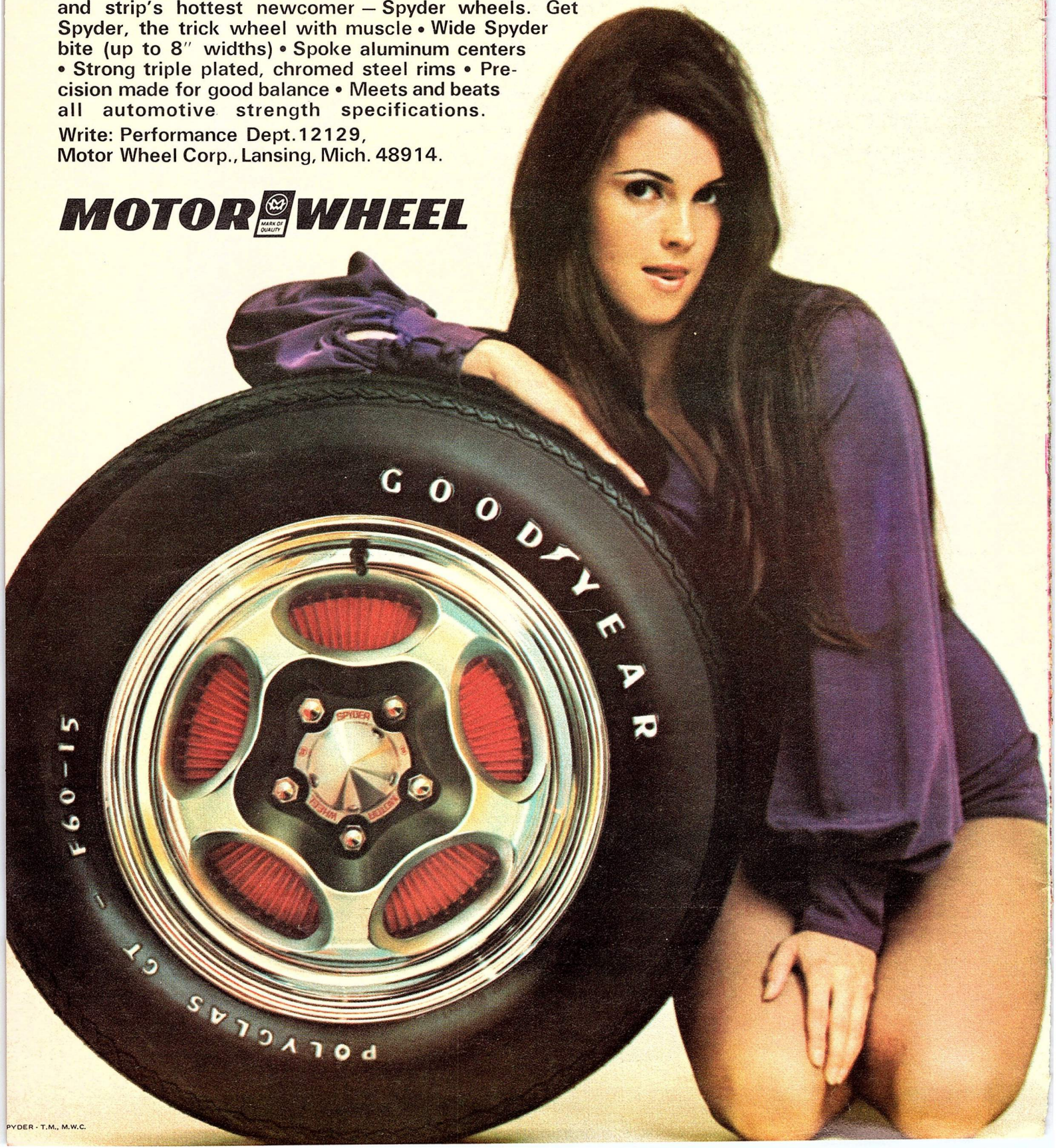


SPYDER - T.M., M.W.C.

PROJECT STREET BUG

By John Dianna ■ Now that we're approaching our final performance installation for our Project Street Bug, we must honestly say it's been so much fun that we're sorry to see the series end. In fact, we've become so attached to the car that we've decided to keep it around for evaluation purposes. What this means is that we're going to use it for daily transportation, with plans to make it a test vehicle for any new VW components that we would like to evaluate. So you can expect to see more on our Bug popping up in future issues.

For our final build-up, we relied on knowledgeable Ken Lowry of Deano Dyno-Soars, in Santa Ana, California. What we attempted in this build-up was to produce an ultimate street engine that could be easily duplicated. For those of you not interested in doing your own engine building, the idea was to make you aware that strong, dependable, high-performance VW engines are available as complete assemblies. DDS has engines that sell from $675 (with exchange)

(Continued on following page)

PROJECT STREET BUG

on up to $2250 (sold outright) to meet the many and varied demands of the VW market. They also sell individual components with instructions for do-it-yourselfers.

Our selection was an 1835cc engine with dual 40mm Weber carbs. To arrive at this displacement, we used our 1600 case (stock 69mm crank) and the DDS-101 92mm cylinder kit. They also have 92mm cylinder kits for the early 40-hp cases (1701cc), but it's recommended to use the 1300, 1500 or 1600 case, as they are stronger and offer increased dependability for extended street operation. Even with the late-model cases, there have been instances of cylinder failure or case fracture. However, these problems are normally incurred due to improper case boring and head cutting and also poor tuning. DDS recommends that the case be bored on a two-operation cut (step cut) so that there is additional material for increased case strength. The spigot area (top of cylinder which is inserted in the bores of the case) on the 92mm cylinders is smaller than was the original design, and this allows room for the step cut in the case. Bore sizes for the step cut are critical, because the cylinders require clearance for expansion under high heat conditions. If the bores are too small and the cylinders expand, either the case will crack or the cylinders will crush. In order to leave as much of the original case as possible and still have the required clearance, bore the first cut to 94mm (3.70 inches) at a maximum depth of 28.5mm. The final cut should be held to 3.790 inches and to a depth of .750-inch (¾-inch).

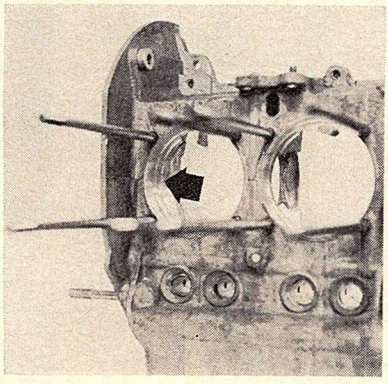
Actually, the 92mm cylinder kits are available to fit the 64, 69, 74, 78 and 82mm cranks and sell for $98.50 to $105.50. The complete kit consists of four cast-iron high Brinell cylinders that have the proper clearance and crosshatch pattern, pistons, rings, pins and Tru-Arc pin locks. Those of you considering the installation of a "big-bore" barrel kit without spending the bucks for all the other available components can figure on a 30% power increase. This is mainly due to the increase in displacement and also an increase in compression ratio. The increased ratio is the result of the pistons, even though the heads require a clean-up cut (.010-to-.020-inch) for a new seating area and boring (3.885 inches) to accept the cylinders. An important step in machining the heads to fit the 92mm cylinders is the depth of the cut. The heads should be bored to a maximum depth of .575-inch to maintain the proper crush on the cylinders. The bore diameter in the head is critical, since it is possible to have too tight a fit, causing the heads or cylinders to crack.

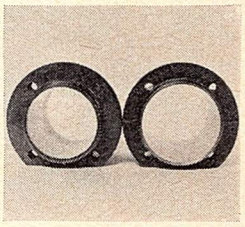
The depth of the fly cut on the heads, the combustion chamber cc and the deck height all determine the overall compression ratio for an engine. Using a .070-inch deck height dimension, these figures are used as a guide in determining approximate compression ratios for an 1835cc engine.

DEPTH OF FLY CUT	COMBUSTION CHAMBER CC	COMPRESSION RATIO
Standard	51	8.4
.050	46	9.0
.080	43	9.48
.100	41	9.8
.120	39	10.1
.140	37	10.5

For our heads, we retained the dual-port 1600 units but had Deano completely rework them. DDS has been developing combustion chamber designs and port flow for many years, and their constant experimentation has enabled them to come up with a head that really works. The total package includes reworked chambers and ports, dual valve springs (shimmed to specs), aluminum retainers, silicon-aluminum bronze valve guides and oversize valves. The intake valves are increased from 35.6mm to 40mm. The DDS intake valves have an aluminized swirl polish on the underside of the head and are recommended when using cylinders with a bore size of 85.5 to 92mm. The exhausts are also increased in size, from 32mm to 35.6mm and are stainless steel. Steel rocker arms are used; however, they were ground, using a bench grinder to accept the Deano "Brawn-To-Soarus" Feet. These swivel-head adjusting screws are necessary when using a cam with more than .375-inch net lift. They replace the stock VW adjusting screws and offer a constant surface contact between the adjusting screw and the valve tip.

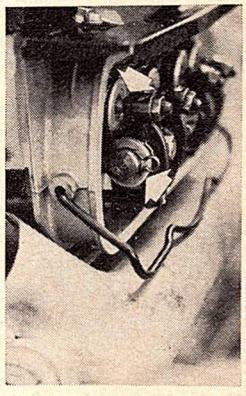
Considering the car's principal function is overall street performance, we were careful in selecting the camshaft. We didn't want to give away bottom-end power by overcamming the engine, but we were looking for optimum freeway cruising ability as well. The cam selected was the Deano DDS-136-S steel billet unit, designed for street and off-road use. The cam has excellent low-end response with the dual-port heads and can be used in engines up to 2180cc. The maximum power operating range is 1800 to 6200 rpm. Cam lift is .415-inch, and duration is 284 degrees (intake and exhaust). In conjunction with the cam, DDS-148 cam followers



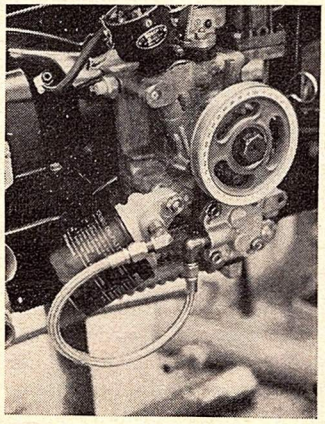


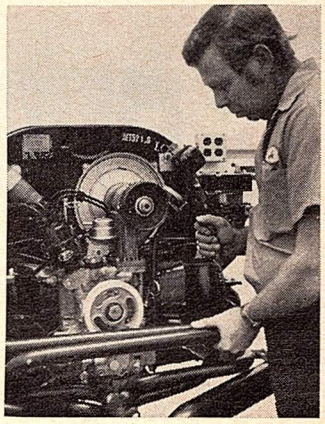
The cylinder on the right is the 92mm DDS unit. A stock 1600 unit is at left.

The step cut (arrow), required for block to accept 92mm cylinders, can be done by accomplished machine shop or with boring tool purchased from DDS.



The stock rockers were ground to accept Brawn-To-Soarus Feet (arrow), which are needed when installing cam with more than .375-inch valve lift. Rockers are spaced evenly over each valve, using valve spring shims.

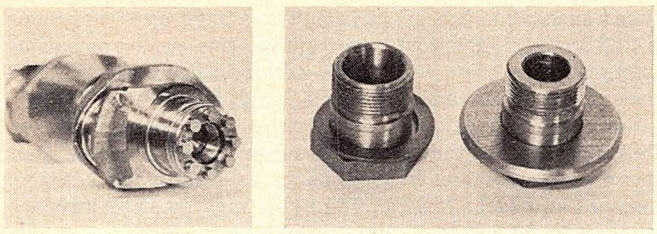




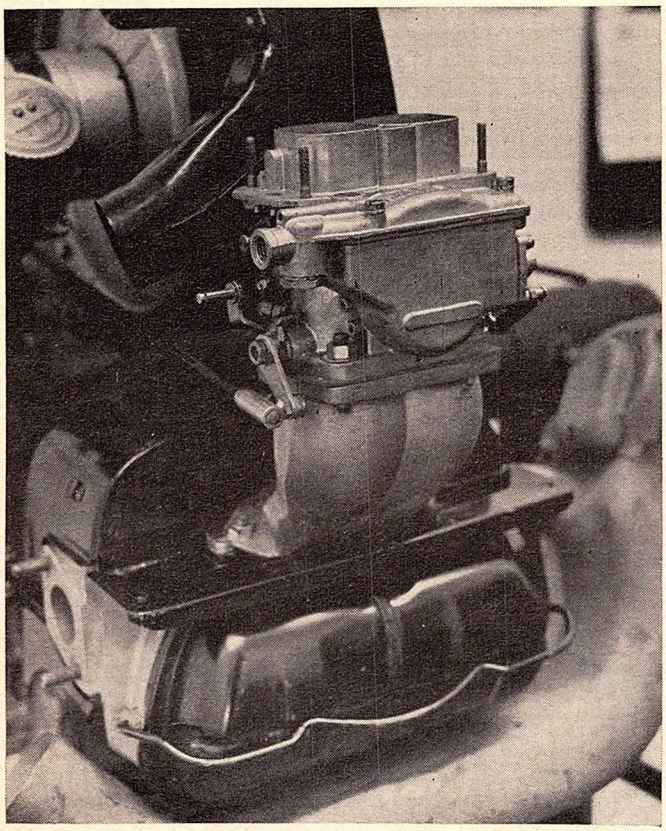
The all-new Deano full-flow oil system is a true 100% full-filter design. When heads are fly-cut, it's often necessary to trim sheet metal for fit.

were also used. They are five grams lighter than stock and are .050-inch larger in surface contact area for high-lift cams. To complete the valve train assembly, chrome moly pushrods were utilized, due to the increased spring pressure. Deano has these rods in lengths ranging from 10.625 to 11.060, depending on the amount the heads are cut.

As far as the basic engine construction is concerned, we used the recommended VW clearances for the crank and rods. Heavy-duty Glyco bearings were used for both the rods and mains and are available through Deano. For the cam bearings, we used two sets of bearings so that we could obtain a 360-degree thrust surface on the rear bearing (bearing journal closest to the pulley). The stock four-dowel-pin-crank flange was drilled to accept eight 11/32-inch-diameter (3/4-inch-long) dowel pins. This installation is critical, as the pins should fit snug, and it's a good idea to install them with Loctite. Deano has made this modification an easy one; they offer a drilling jig that sells for $59.95 to do the job on both the crank and the flywheel. Our used flywheel was lightened; however, DDS sells new flywheels that have already been lightened by 10-11 pounds.



Our stock 1600 crankshaft was fitted with 11/32-inch dowel pins (8). This is a modification that can be done at home with DDS drilling jig. Here's comparison (above right) of the stock gland nut (left) and large-diameter Deano gland nut and washer.



The 40mm Weber carbs lend themselves very nicely to street usage. The carbs are modified at DDS with correct venturis, jets, etc., for the VW.

photography: John Dianna and Mike Brenner

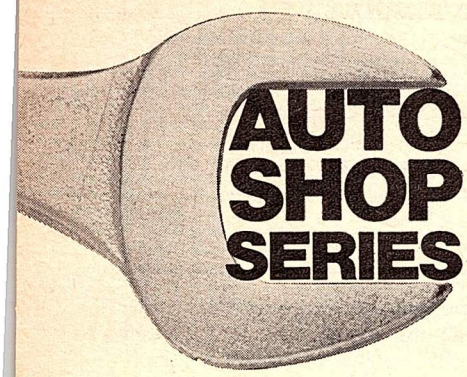
VW DYNO RESULTS	
RPM	CORRECTED HP
2500	59.80
3000	70.98
3500	79.63
4000	97.67
4500	112.98
5000	119.60
5500	127.50
6000	133.20

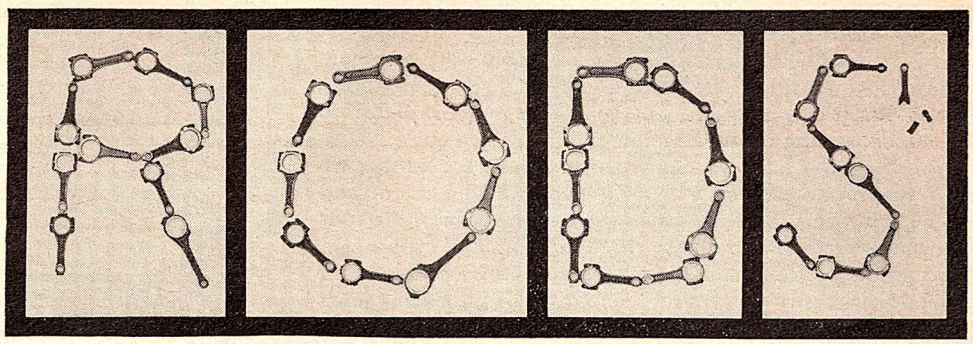
The oiling system for the engine was outfitted with Deano's new full-flow oil filter and pump. This new system is a true full-flow unit as it filters 100% of the oil before it reaches the bearings. The filter is fitted with a pop-off valve that eliminates oil-can blowing in case of oil surge during an excessive cold start, but the bypassed unfiltered oil is not dumped into the engine. Oil pressure and volume are increased throughout the rpm band with Deano's new high-capacity oil pump. The system can be installed with the engine in the car, since the kit contains a self-tapping filter mount that leaves no shavings when the fitting is installed for the first time. However, if for any reason the mount bolt should need to be removed, then the engine will require flushing to remove the shavings. The complete filter and pump sells for $59.95. To increase the oil capacity in an effort to keep the oil temperature down, a DDS engine oil sump was installed. The sump holds an additional 1.5 quarts of oil, and this, coupled with the extra quart in the filter, helps the oil temperature problem tremendously.

With the new engine assembled, we then installed the induction system. Dual 40mm Weber carbs were the selection, and they received the required modifications for VW street performance from Deano. The mods include smaller venturis and the correct main and air correction jets and emulsion tubes for good street performance. Jets are available so that the carbs can be adapted to particular altitudes or climatic conditions. Deano has dual-intake manifolds to mount the 40mm Webers to the dual-port heads. To complete the induction system installation, a center-pivoting throttle linkage operates both carburetors. This type of linkage allows for engine heat expansion so that the carbs stay in synchronization. Twin air cleaners screen out the dirt, and everything fits neatly under the stock deck lid.

The final tuning combination includes Deano's new Power Pulley and belt combination (worth 10 hp at high rpm) that reduces the size of the crank pulley to the same as that of a Porsche. The distributor was changed in favor of a Bosch 0231129010 unit which has a built-in 9-11-degree advance. Full advance comes in at 2600 rpm, and timing is checked with a timing light at about 3000 rpm. The total is set at 32 degrees. It is highly recommended that a modified engine be checked with a timing light rather than a continuity tester as is common practice with stock VW engines. The continuity tester is fine for obtaining initial timing for the first start on a new engine, but it's a good practice to hook up a timing light and set the total right away. High-horsepower VW engines will not tolerate poor timing, as preignition or detonation can severely damage a perfectly good engine.

After final assembly, the engine was put on Deano's dyno, as are all their engines, to see what kind of power we could expect. Peak power was 133 @ 6000 rpm, and it remained strong throughout the range. In the car, our final engine build-up proved very worthwhile. It's as much as we could expect from an engine that will be relied on for everyday transportation. Total investment for parts was slightly over $900, and that included everything, right down to the exhaust extractor. Performance capabilities are somewhere in the low-15-second area; however, with gearing and some fine tuning, we could have a to-the-office high-14-second Street Bug. Not bad, considering Detroit is no longer building off-the showroom supercars. ■■





The vital link between power and propulsion is the connecting rod. A thorough knowledge of its function in the power chain will ensure that your choice isn't the weak link

by E.K. von Delden

In our kickoff "class" in the Auto Shop Series on Engine Basics (HRM, Sept. '71), we defined the connecting rod or "rod" as the part of an engine which "transmits and converts up-and-down (reciprocating) motion of the pistons to rotary motion at the crankshaft." In simpler terms, this means that when energy is released in each cylinder, it must be "collected" and made available to do work in the most useful form. That form is rotary motion, and the common link to all cylinders to achieve this is the connecting rod, one for each cylinder, connected to the crankshaft of the engine.

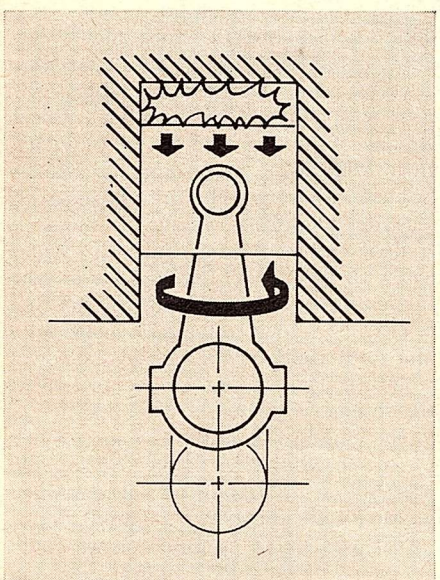
Rods are the most overworked parts in an engine. A big statement, but true. Historically, more engines have been lost due to a rod failure than for any other reason. For the average engine in today's cars, Detroit has not encountered serious problems. But for high performance, no one has come up with a rod as reliable as most other parts in the engine. For all-out racing, engineers and hot rodders have been doing better, with fewer failures, but horsepower always seems to be one step ahead of what rods can take. When you finish this class, you'll understand why.

First of all, a rod is exposed to all four basic types of stresses: tension, compression, bending and torsion (twist). Of the four, tension and compression are predominant and have the greatest effect on the design of connecting rods.

Second, these stresses are applied and removed several times every time the engine completes a power cycle. Some of the forces combine and are additive. This cycling or pulsing is much worse than if the loads were applied continually and causes fatigue and eventual cracking and failure.

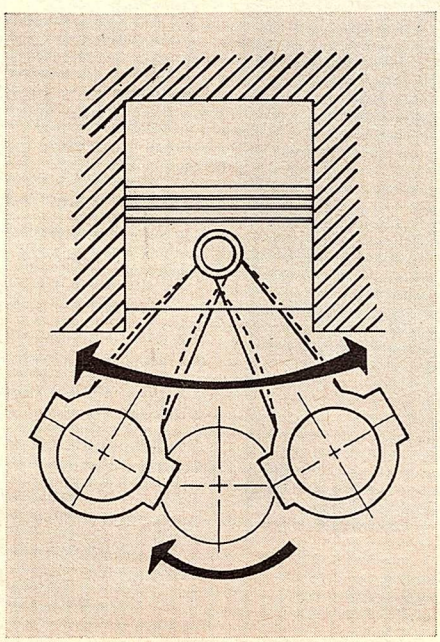
In order to engineer a rod to resist all this punishment, you first must look at the cause of the stresses on the rod. Thus far, we've seen that rods undergo four different types of stresses in a cyclic fashion. Therefore, rods must be designed with sufficient strength and made from material with good durability. Let's take a closer look at these stresses, one at a time, and understand when and why they occur during the four-stroke cycle of an engine (intake, compression, power, exhaust). Then we will review how rods are commonly designed for most cars to survive all this and what their weak points are. Finally, with an understanding of basic rod design, we will review the significant things which can be done to improve them and increase reliability.

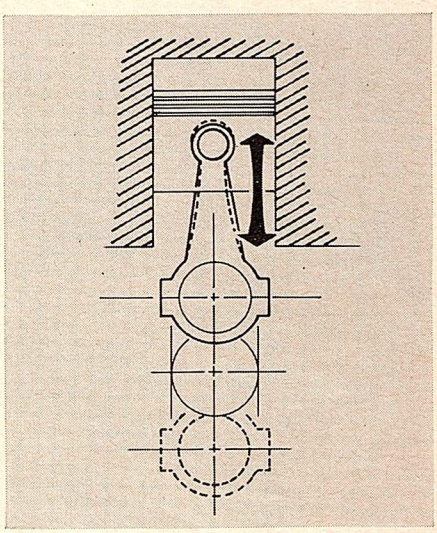
To kick things off, let's look at a graph (prepared by Chrysler engineers) showing the loads on a connecting rod measured on a 426 track Hemi running at 7200 rpm. A quick look at the chart shows the highest load is 16,000 pounds tension



During normal combustion, with the rod at top dead center, the load from the combustion process causes a compressive force on the rod and a torsional vibration in the plane of the curved arrow.

Whipping stress, caused by movement of rod around the crank centerline, produces forces which tend to distort the rod, as shown here by the dotted lines.





At top dead center of the non-power stroke, forces on rod are at their maximum. Force is that of tension, and even the strongest of rods will elongate at high rpm. That is one good reason for checking piston-to-head clearance.

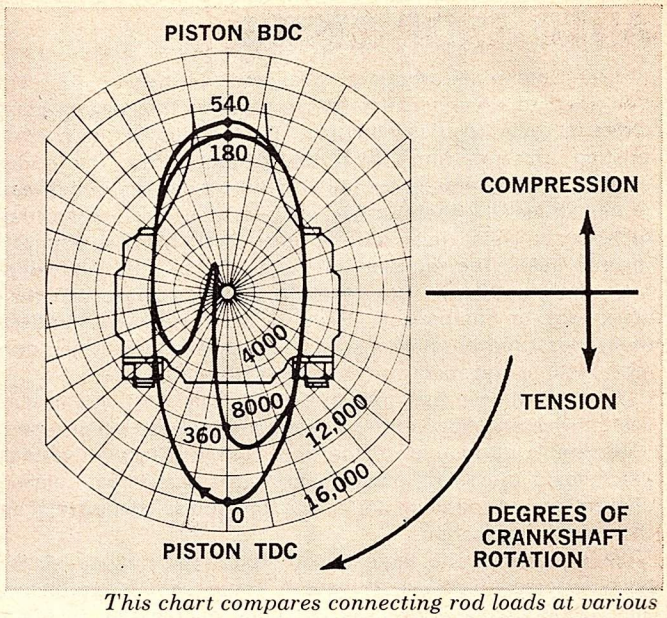
illustrations: Kenneth Youngblood

and the lowest about 2500 pounds compression. Interestingly, the highest load (16,000 pounds) occurs on the nonfiring or overlap stroke at top dead center (TDC), represented by the 0 (zero) position on the chart, and is caused by the inertia of the reciprocating assembly, namely the piston, rings, piston pin and the small-end half of the rod. In other words, the combustion loads are minor compared to the self-induced inertia forces. Surprised?

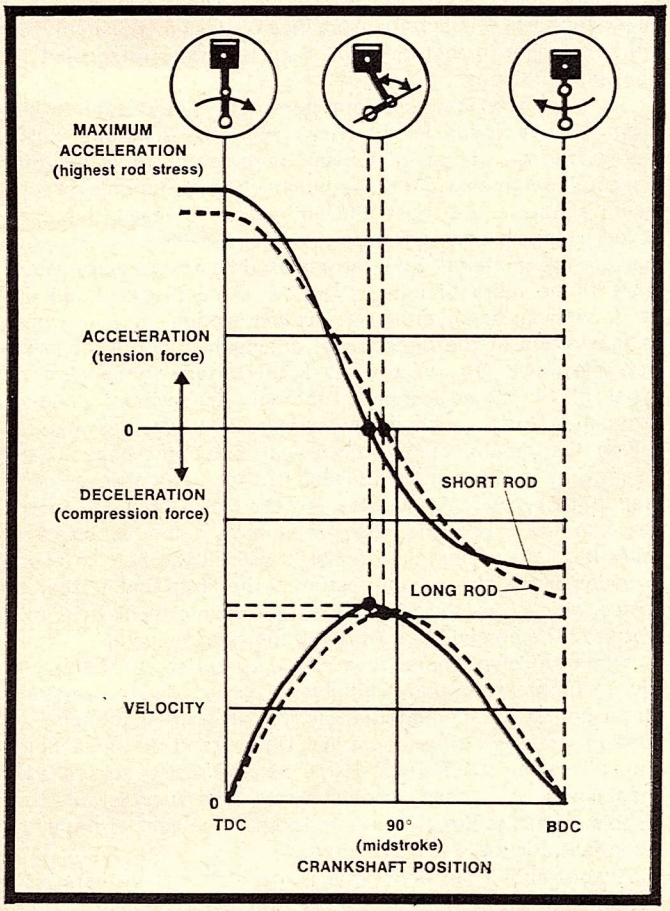
At overlap TDC the piston has completed the exhaust stroke, is suddenly stopped and reversed to begin the intake stroke. To produce a 16,000-pound load, the reciprocating assembly (mass) is experiencing an unbelievable acceleration of about 4600 Gs. This results in rod stretch with maximum shank stress occurring near the small end of about 47,000 pounds per square inch. As the crankshaft rotates 180 degrees to bottom dead center (BDC), the load on the rod reverses to a little less than 12,000 pounds compression or push on the rod as the piston changes direction again and begins the compression stroke.

During this stroke, the load reverses on the rod as combustion occurs in the cylinder, fuel begins to burn, and pressure builds up. This occurs near TDC as the rapidly increasing cylinder pressure overtakes the tension inertia load and compresses the rod with a maximum force of about 2600 pounds shortly after TDC. The crankshaft proceeds to BDC again (540 degrees) as the exhaust valve opens and spent gases begin to exit the combustion chamber. Intertia force on the rod at this point is slightly higher than preceding stroke (180 degrees), due to residual pressure in the cylinder. The crankshaft then returns to zero TDC, completing the exhaust stroke, and the cycle starts over again.

It should be made clear that the inertia forces we've been talking about occur as the reciprocating mass changes direction at each end of its stroke and accelerates toward its greatest velocity. If the greatest velocity occurred at midstroke or halfway between BDC and TDC, the acceleration would be the same at BDC and TDC, right? But it isn't. The geometry of any crank-rod-piston mechanism causes the piston to achieve its greatest speed at a point above midstroke where the rod is at a right angle (90°) relative to the crank (graph at left). And, since the distance (piston travel) between TDC and the maximum velocity point is shorter than the distance from BDC to the same point, then acceleration must be greatest over the shorter distance. The result of course, is greater inertia loads near TDC, and the Chrysler chart proves it. Incidentally, TDC acceleration gets even greater as rods are shortened for a given crankshaft stroke.



This chart compares connecting rod loads at various crankshaft positions for the Chrysler Race Hemi at 7200 rpm. Note the maximum load of 16,000 pounds at TDC of the overlap stroke and a minimum load of about 1000 pounds as combustion occurs.



Relationship of piston acceleration to the crankshaft position is shown above. Maximum velocity always occurs between TDC and midstroke. This causes rod stress to be highest at TDC (on overlap stroke). Shortened rods multiply the rod stress at TDC and cause higher piston speed, too.

The explanation above accounts for two (tension and compression) of the four types of forces seen by the rod. The remaining forces occur as follows. In order to convert up-and-down motion of the piston to rotary motion at the crankshaft, the rod goes through some weird gyrations. The small end reciprocates with the piston, whereas the large end rotates with the crankshaft. The portion of the rod in between, called the shank, does a combination of the two motions which, in essence, requires a sideways wigwag motion along with up-and-down motion. This side-to-side, or lateral, motion causes the shank to experience bending or "whipping" stresses. As we have learned, maximum stress occurs when the rod changes direction (similar to the piston), or each time the rod reaches its farthest lateral position. But these stresses are typically low (about one-sixth of those discussed above caused by piston inertia). Also, whipping forces peak at about 75° of crankshaft rotation, both sides of TDC. At this crankshaft position, the other major inertia loads are low; however, whipping forces do affect the shape of the rod, as will be explained later.

The last force to be considered is that resulting from torsion or twist. This force has had the least effect on connecting rod design, primarily because it is believed by most to be so low and, therefore, can be ignored. The twist results from torsional vibration which is triggered by uneven combustion. This occurs as the spark plug lights the air/fuel mixture in the combustion chamber and the flame front moves across the dome of the piston from one side to the other. Unequal burning of the fuel in conjunction with a "loaded up" or "flooded" engine can also cause some unpredictable severe loads on rods in addition to all those above.

(Continued on following page)

AUTO SHOP SERIES

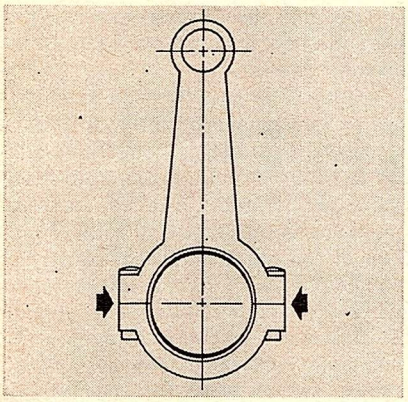
Let's summarize what we've learned. Connecting rods are subjected to a variety of forces every time the engine completes a cycle (two revolutions). There is obviously a combustion pressure force from the piston during the power stroke, but it is greatly exceeded by inertia forces in between power strokes by the so-called reciprocating mass consisting of the piston, pin, rings and the upper portion of the connecting rod itself. The rod sees other forces too, like side whipping stress and torsional or twisting vibration stress, but they are minor in comparison. Rods have to survive countless thousands (and possibly millions) of these stress cycles during a lifetime, depending on car and application.

Next we will see how rods are traditionally designed to survive all this and how improvements can and are being made.

Generally, all rods are made from carbon steel with various percentages of carbon, and in some cases alloyed with nickel, chrome or molybdenum for added toughness, depending on the type of application.

Let's consider the largest load first — the overlap stroke tension force — because it causes some serious problems. This 16,000-pound force acts as a pull on the rod. In other words, if the rod should break, the piston and fragments of the rod attached to it would fly out the top of the engine.

First, understand that what we are trying to do here is not only provide enough metal to resist the load without remaining permanently distorted (yielded), but to control distortion or flexing in critical areas like near the bearings where clearances are small and roundness essential. So the shank portion between the two ends, for this load, must only contain enough cross-sectional area of metal so as not to be overstressed. Shape is unimportant: square, round, I, H, or what have you. Chrysler uses a minimum of 0.35-square-inch, resulting in a stress of about 46,000 psi on the Hemi. The trouble commonly lies near the large end which is attached to the crankshaft. The pull causes it to go egg-shaped as shown. If

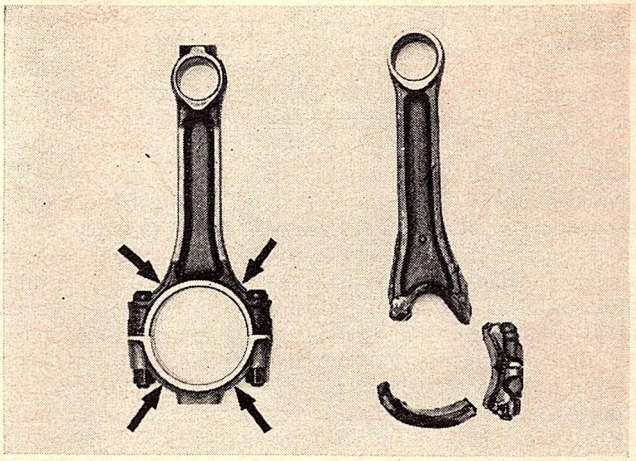


Weak rod allows high-rpm stretch to pinch the rod in areas shown by arrows. It permits the big end to go egg-shape and results in the oil film being squeezed out. The consequence is quick failure of the rod bearing, and usually the engine.

the large end is not beefy enough, distortion is excessive and the bearing inserts in the rod are forced inward and the oil film squeezed out. The dismal results are apparent: a lunched engine. Excessive distortion of the large end also causes the rod cap bolts to experience some bending, which spells the death rattle for any bolt.

Speaking of cap bolts, there are some headaches associated with their use. When one machines a flat spot on the rod and cap for the head of the bolt or nut, the usual result is a weak spot because the rod cross-section is reduced. But worse, it also puts a notch in the rod, which causes stress concentration. Therefore, most manufacturers have added extra beef on the rod and cap at the locations where the flats are machined, which more than compensates for the material removed to achieve a machined flat. But the notch remains and so does the stress concentration.

Next, let's tackle compressive rod loads. You recall they occurred three times during the four-stroke cycle. Both times the piston reached BDC and reversed direction, a sizeable



A poor rod design is one which is weakened by machining reliefs for the rod bolts. The clearance reliefs can cause stress concentrations and weak spots which result in strangely shaped rod shown on the right.

compressive inertia load resulted. Also, on the power stroke, the piston was driven down by pressure build-up in the combustion chamber. This results in a compressive load on the rod as this force is transmitted to the crankshaft. Unlike tensile or pulling loads, a compression load on the rod shank is somewhat more difficult to design against. The shank must now be considered as a column with ends that are free to pivot in one plane, but not the other. Engineers call this a pinned end column in one direction and a fixed end column in the other. Under a compressive load, if the rod shank buckles, it would tend to do so in the direction where the ends offer least support. It is common practice to design the shank four times stronger in that direction than the other to account for the end conditions.

To compound the problem here, the side-to-side "whipping" forces occur in the weak buckling direction. Fortunately, the two forces don't peak at the same time, but they do combine to worsen the problem. The commonly used I-beam shank is the most efficient shape to resist this combined whipping and compressive force. By efficient, we mean that if the material were arranged differently, there would have to be more of it to resist the same forces. It all has to do with an engineering term called section modulus which is maximized in the direction of anticipated failure for greatest resistance. To do this, it is necessary to concentrate most of the cross-sectional material the greatest distance from the neutral or beam center axis. This provides material where the greatest stress occurs at the outer edge of the beam, not in the center. Efficient use of material in a rod is important because it saves weight, the cause of all the inertia force in the first place. Also, rods have a limited space to work in. If the shank is too wide, it will hit the bottom of the cylinder or the skirt of the piston. If the large end of the rod is too wide, it will hit the side of the engine block or it may not fit in the engine at all (through the cylinder bore).

When sufficient material is added to resist all of the tension, compression and whipping stresses, the rod usually turns out to be adequately strong to also resist torsional vibration stresses discussed earlier. Understand that a so-called "open" cross-section such as the I-shape resists torsion very inefficiently. A "closed" section like a tube is preferable, but in this case, the stresses are believed to be very low and the I-shape is adequate to resist them.

A word about cap bolts. The name of the game here is to prevent the cap from pulling away from the rod when rod tension distorts the large end into an egg shape. The forces are tremendous and the space limited, so super-alloy high-strength bolts are used. When the bolt is tightened, the prestress must always be greater than anything it will see in operation, so tightening is critical; and to control this accu-

rately, torque wrenches won't do for the high-performance-minded. Instead, the stretch of the bolt during tightening is more reliable. In a Chrysler rod, the bolts are tightened until they have stretched between .0095- and .0100-inch. This corresponds to a prestress of about 148,000 psi or roughly 18,200 pounds of preload tension in each bolt! Tightly fitting bolts in their holes are most commonly used to maintain correct alignment of the rod cap, but alignment sleeves can do the job more accurately and are preferred by many.

So far we have discussed all the whys and wherefores of rod design for the known predictable forces acting on them, but what about the unpredictable ones — like a sudden backfire or detonation? They can destroy rods quickly; here's why.

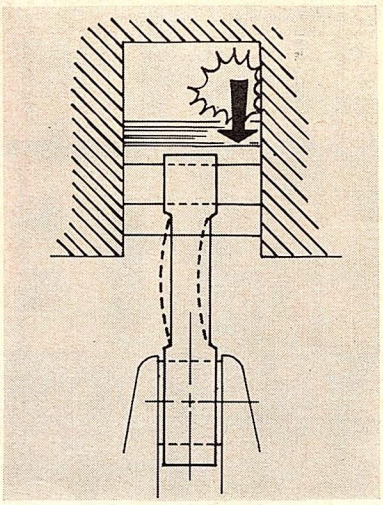
The normal combustion pressure in a cylinder peaks up to a maximum of about 700 psi at a predictable build-up rate. But sometimes an excessive amount of fuel builds up in the cylinder and unexpectedly goes off, like when trying to start a "flooded" engine. When this happens, the pressure can go out of sight. What's worse, this pressure can act very unevenly on the piston and try to cock it to one side. If this happens, the piston pin controls which way the piston can cock or rotate in the cylinder. In one case, the rod sees an excessive compressive load but no bending occurs because that is absorbed by the cylinder wall as the piston cocks and rotates on the pin. In the other case, if the uneven forces act in a direction 90° to this, they are absorbed directly by the pin and transmitted to the rod as an eccentric load or bending force. Because of this, some believe the rod shank should be designed equally strong in all directions to resist the normal as well as the abnormal forces. This is most efficiently accomplished by a hollow shank, either round or rectangular (sometimes called a box section). Tubular shanks seem to be the coming trend for high-performance rods. Offenhauser realized the advantages years ago and has successfully used the tubular rod in Indy engines.

A rod discussion would not be complete without a mention of some of the tricks that have been found necessary to make rods as reliable as possible. Attention to detail is essential. Quality of the material is extremely important in such a highly stressed and overworked item as a rod. Any flaw can grow to disaster quickly. Forging the rod into its rough shape is the common factory method which usually, but not always, produces flawfree material. Magnuflux or other crack-detecting methods are commonly used to assure that no subsurface cracks exist. Rods must be straight and the ends round before they are placed in service. A good idea is to "trim" the rods by removing excess forging joint slag and handling nicks from the outer (most highly stressed) flange surfaces on the shank. But don't try to lighten the rod, hoping that you will reduce some of those high inertia loads. It's a dangerous practice. Also, the crankshaft will have to be rebalanced to match the rods if you do. Shotpeening the entire outside of the rod, particularly the flanges, is highly recommended. This process compresses the outer surface of the rod, leaving it in a prestressed condition (much like cap bolts are prestressed) up to 150,000 psi. Fatigue life of the rod greatly increases and irregularities on the surface are smoothed out.

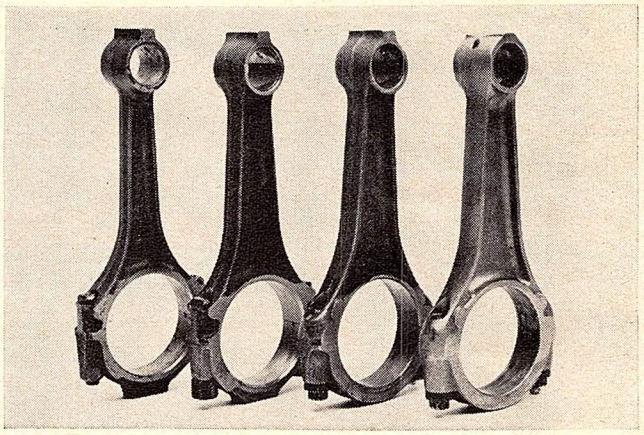
The integrity of cap bolts can be verified by a simple surface hardness test on the head of the bolt. The results compared to manufacturers specifications can be easily checked to catch that one bad bolt that may slip past the inspector.

All the above tricks are designed to get the most out of rods. All are accepted practices by responsible high-performance-engine builders, because they realize the importance of rods and the disaster that results when rods let go. The beauty of all these tricks is that they're all cheap, but they are time-consuming and take meticulous care to do correctly.

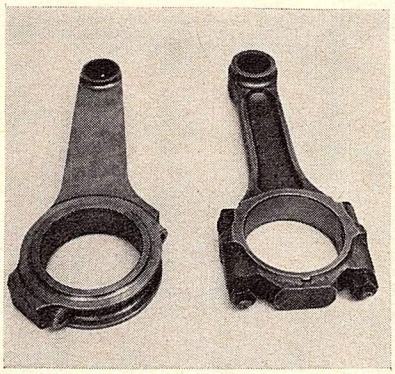
The photos show comparative good and bad features to look for in rods which we have discussed. They should give you a trained eye to spot a bad rod when you see it. And, with the background on rod theory and design presented above, you will have an appreciation for what constitutes good rod design and the demanding role they play in your engine. ■■

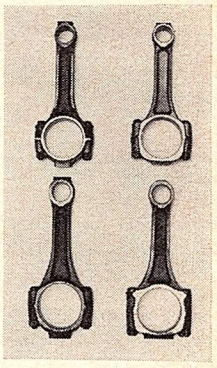


In addition to loads in the plane of motion, rods must also be capable of being overstressed sideways due to unequal combustion on premature detonation. This is the reason for the "H" cross section found in most con rod designs.

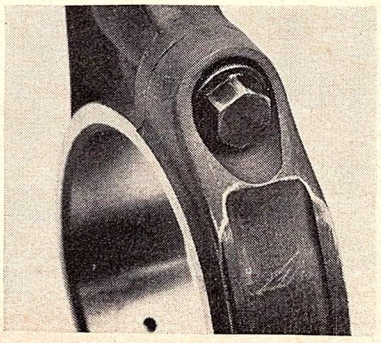


ABOVE — Left to right is seen the evolution of the Ford 427 high-performance rod from the stock 390 rod. BELOW LEFT — A hollow-shank rod by Rotofaze is contrasted to a heavier and weaker stock hemi rod.





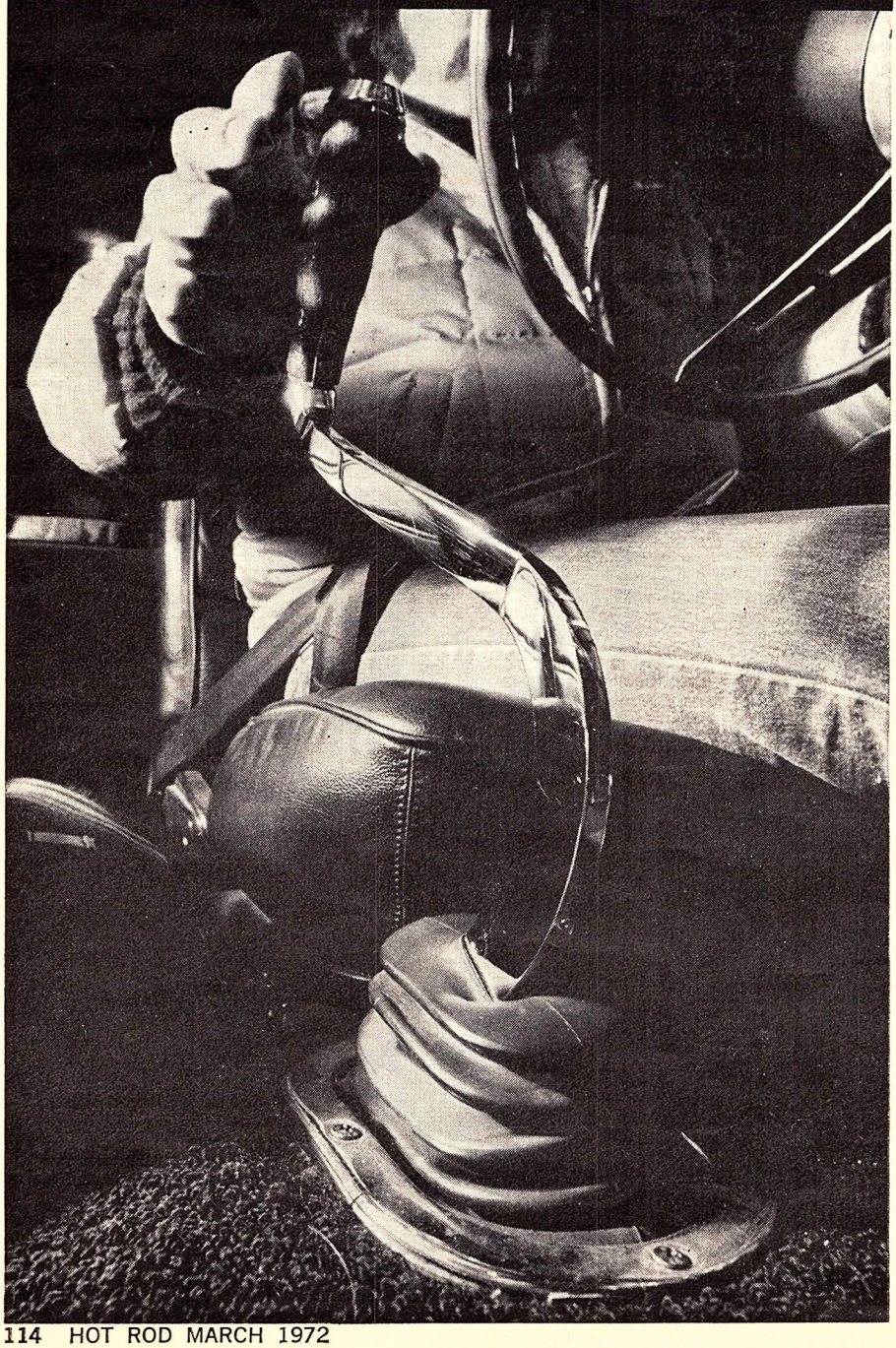
ABOVE RIGHT — Rod development at Chevrolet with standard small-block (upper left), compared to the late Z/28 rod (upper right). Similarly, early 409 and L88 (lower right).



Example of good design practice around the bolt to minimize stress concentration, a potential cause for failure of the connecting rod.

BUYER'S GUIDE: SHIFTERS

Your current shifter could be standing between you and some quick, precise shifts. Improve your lot with a selection from this complete list of manual and automatic gear changers



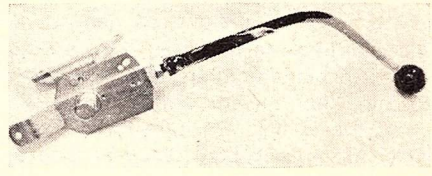
By John Fuchs ■ No matter what kind of car you drive, it's safe to say that it's got a transmission, and that transmission has a set of gears in it that have to be shifted, either automatically or manually. That laborious task is relegated to your shifter, a relatively innocuous hunk of iron that must perform its function flawlessly or risk the wrath of its owner. Considering what they are called on to do, most original equipment shifters are more than adequate; but many of these units were designed to be all things to all people. As a result, the performance enthusiasts are not satisfied with their stock shifters and are ready to replace them with the first thing they can lay their hands on.

Most aftermarket shifters, on the other hand, have been designed for the performance enthusiast and are able to cope with the rigors of "weekend warrior" jaunts to the drag strip. Sure, the effort is going to be a little higher than with your stock unit, but the throw is much shorter. The "feel" should also be improved, since most OEM shifters are rubber-mounted while the aftermarket sticks are usually bolted in place.

Shifters come in many different shapes, sizes and price ranges. Some can be purchased for just over $10, while other models may run you over a hundred bucks. In the following Buyer's Guide we have tried to include a selection of most of the currently available models, for both automatic and manual transmissions. If you are having trouble with missed shifts, a new stick may help you; but before you go blaming the shifter, make sure the problem is not the fault of the shiftee!

ANSEN AUTOMOTIVE ENGINEERING

Ansen is well-known for their line of high-quality cast-aluminum wheels, but they also produce a very complete selection of excellent-quality shifters. The units are called "Posi-Shift" shifters, and the line-up includes four-speed and three-speed models for most domestic applications, as well as a floor shift conversion for automatics (shown in the photo) called the Posi-Matic. The top-of-the-line shifter is called the Royal H.D. and has been designed for high-perfor-

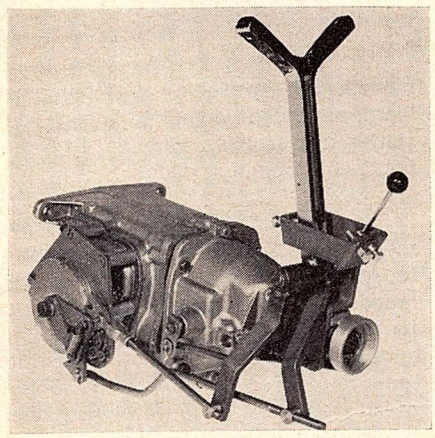


mance shifting and easy installation. It features arms and rods that are installed in a downward position, thus eliminating floorboard interference and adjustment problems. Other models are the Posi-Shift Jr. and the specially designed Posi-Shift shifters for pickup trucks.

BIEBER ENTERPRISES

William J. Bieber is the manufacturer

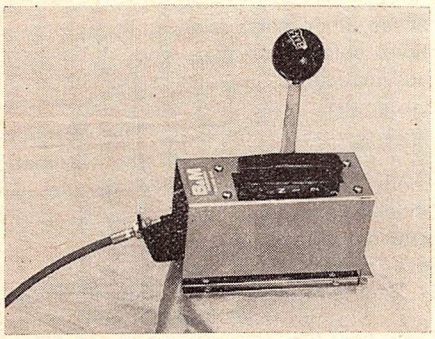
of a very unique shifter called the Bieber Changer. It features two handles, one for upshifting and one for downshifting, and every shift is accomplished by pulling straight back on the appropriate lever. There's no H-pattern and no crossover gate to contend with. A cam changes gears positively and precisely, and reverse has its own separate system.



These straight-line units are recommended for competition use only, where some racers report that this shifter alone has reduced their e.t.s by as much as .10-second. It is currently available for Muncie transmissions only, although some racers have adapted them to other transmissions. As you might expect for such a specialized item, the racer's net price of $139.95 makes this model practical only for serious shifters.

B&M RACING TRANSMISSIONS

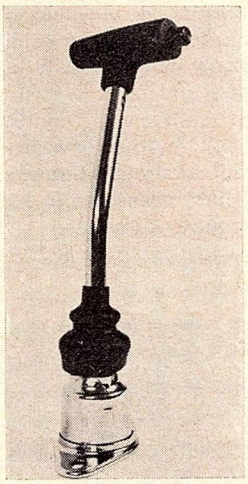
B&M is one of the oldest names in the aftermarket automatic transmission shifter business, and their remote cable-type unit shown in the photo is one of the best on the market. It can be used for both street and strip applications and will fit all late-model Ford, GM and Chrysler automatics. Also available are mechanically actuated Competition and Hydro-Stick floor shifts for most applica-



tions. Brand-new from B&M is the Ratchet Shifter, an automatic shifter with a unique ratcheting mechanism that works much like a motorcycle shifter. For each upshift, the lever is moved forward, and when released, it returns automatically to the central position. B&M products are available through most speed shops across the country.

DEANO DYNO-SOARS, INC.

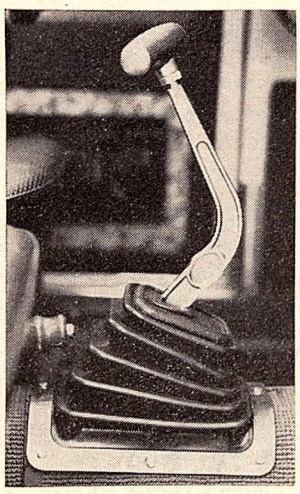
Deano Dyno-Soars is a name that has long been associated with performance equipment for VWs, and their push-button Safe-Tee-Shifter is one of their fine products. This short-throw, positive-action unit features all steel construction and is backed by a five-year or 50,000-mile warranty. A push of the button allows shifting your VW into reverse, using



either the Sedan or the Bus model unit. The Saf-Tee-Shifter is priced quite reasonably and is available nationwide.

EMPI — ENGINEERED MOTOR PRODUCTS, INC.

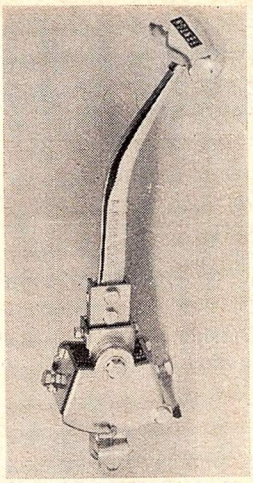
The Eliminator Shifter from EMPI is a racing-style shifter available for VW Sedans and Ghias. The shift pattern has been reduced by 40% for positive, lightning-fast shifts, and reverse gear is spring-loaded for accurate selection. The lever is drop-forged and fully chromed and features heavy-duty nylon pivot



points and a contoured hardwood T-bar handle. The rubber boot and chrome mounting plate are included with the shifter. Installation can be accomplished in about 15 minutes. The Eliminator falls into the reasonably priced category and is also readily available nationwide.

FENTON COMPANY

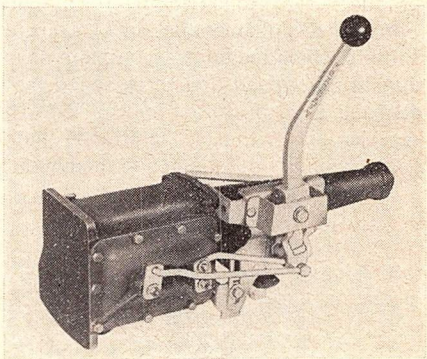
Fenton, another well-known high-performance firm, offers a complete line-up



of shifters in all price ranges. The four-speed competition unit shown in the photo features narrow-gate short-throw shifting and is designed for both all-out racing and street/strip use. The heavy-duty construction and Fenton's extensive testing program enable this model to carry a lifetime warranty to the original purchaser. Other products include three different grades of three-speed shifters, a floor-mounted Autoshift Conversion Kit that provides fast positive shifting for automatic transmissions, and a VW Deluxe Shifter with push-button reverse and 40% shorter throw that's available for all types of Bugs.

G.W. FOXCRAFT PRODUCTS CORP.

The Foxcraft Company manufactures a complete line of three-speed floor shifters and floor shifter conversion kits, including the Super Caravelle (shown), Caravelle, Getaway and Speed King. These high-strength units all feature solid three-point mounting to the trans-



mission and are fully guaranteed. The built-in reverse-gear lockout prevents accidental selection of that gear. Easily installed, these shifters come with complete instructions, and the kit also includes an attractive vinyl boot. Foxcraft shifters are available nationwide.

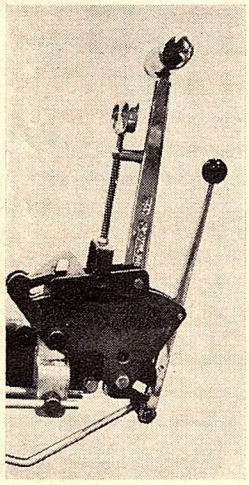
MR. GASKET COMPANY

Mr. Gasket offers a full complement of shifter models in many different price ranges, the top-of-the-line model being the vertical-gate straight-line unit shown

(Continued on following page)

SHIFTERS

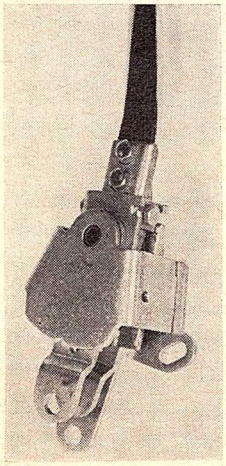
in the photo. This shifter, designed by Bill Bieber of Bieber Changer fame, is available for most late-model domestic cars, and is intended for competition use only. (For more information, see "Super-shifter," HRM, April '71.) Also available are the four-speed Eliminator, three-



speed Eliminator, three-speed Dominator and a new positive-shifting VW unit. Mr. Gasket is one of the most respected names in the speed equipment business, and Mr. Gasket shifters can be purchased at most speed shops across the country.

HOLLEY CARBURETOR — MICKEY THOMPSON

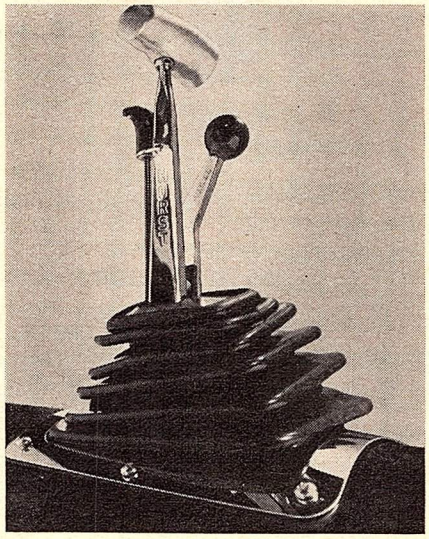
The Mickey Thompson line of speed products from Holley has been expanded with the recent introduction of a line of shifters which includes a complete selection of four-speed and three-speed models, and even a shifter for the VW. The key element of the M/T shifter is that it offers quality materials and heavy-duty



construction at a reasonable price. All levers are case-hardened, the rods are extra-strong and the chromed stick is bolted solidly to the shifter mechanism itself. The new M/T shifter, available at most speed shops, is designed to compete with the $100 models while costing only a little more than half that amount. (For further information, see Holley Shifter story on page 101.)

HURST PERFORMANCE, INC.

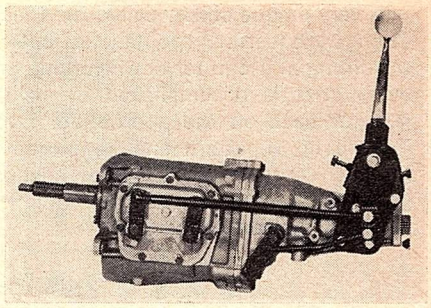
When the talk turns to shifters, the first name you think of is Hurst, the biggest name in the business. Hurst's top offering is the new Super/Shifter, a competition-only unit that features the shortest throws and most precise shifting of any Hurst shifter ever (and that's saying something). Another new product is the Ram Rod, a straight-throw shifter that George Hurst developed in 1959 but has only recently introduced. This model, shown in the photo, is also recommend-



ed for competition use only. (For further information, see "Ram Rod: Racer's Hardware," HRM, September '71.) The Hurst line-up also includes the venerable Competition Plus model, the Auto/Stick shifter for automatic transmission applications, two different units for three-speeds, a short-throw shifter for VWs, a new shifter for Toyotas, and a just-introduced economy model for V-Dubs that should sell in the neighborhood of 10-15 bucks. The multitude of Hurst shifters continue to be available nationwide as they have been for years. All Hurst shifters, incidentally, are unconditionally guaranteed for the life of the original installation.

MONTGOMERY WARD

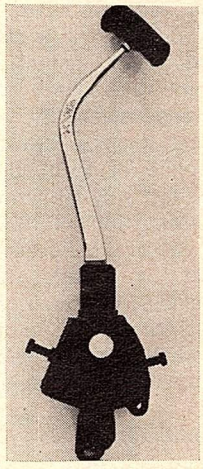
The cross-country chain of Montgomery Ward stores are marketing the complete line of Hurst shifters, including the competition-only Super Shifter (illustrated). This model features extra-heavy-duty linkage and short, bolted-in stick. Using this model may require cutting new holes in the floor, because it is designed to mount as close to the transmission as possible. All other Hurst



models are available at Montgomery Ward, as are the complete line of Hurst shifter accessories, such as T-handles, boots and mounting plates.

J.C. PENNEY COMPANY, INC.

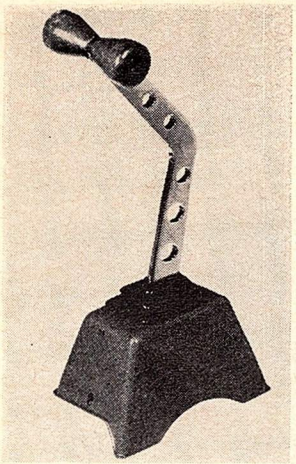
Penney's nationwide string of department stores market a line of excellent, top-quality shifters under the A/FX brand. This is also the name they use for their plethora of other high-performance products. The photo illustrates the four-speed Competition Shifter, which features a narrow-gate, short-throw mechanism and incorporates a reverse inhibitor, spring-loaded chrome bolt-on stick and phosphatized parts and



linkage. Other Penney's models are a three-speed Competition Shifter, three-speed floor conversion unit, automatic floor shifter for two- and three-speed automatics and a Volkswagen shifter incorporating both short throw and spring-loaded reverse features. The Competition manual shifters and the automatic model come equipped with T-handles. All models are sold complete with boots and mounting plates.

SCAT ENTERPRISES

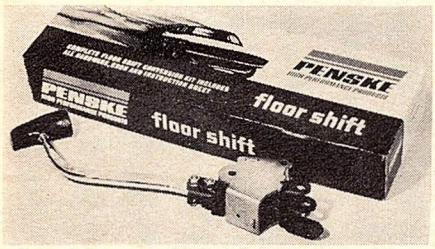
Scat is another of the many firms that are deep into the VW performance thing, and their shifter is only one of many fine products that they have available. The throw has been shortened to provide fast and accurate shifting on street and strip, and the lever is spring-loaded so there's no need to press down to locate reverse. The curved stick is triple-chrome-plated and topped off with a glossy walnut T-handle. The complete kit, which comes with a contoured con-



sole and black vinyl shift boot, can be installed in minutes without any alteration to the VW floor. Retail price falls into the very reasonable category. The Scat shifter will fit all VWs except the transporters and buses.

SEARS, ROEBUCK INC.

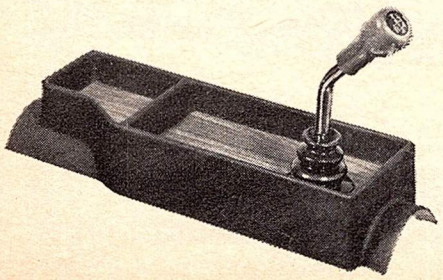
If you think the Penske four-speed floor shifter shown in the photograph looks a lot like a Hurst, you're right. It's made by Hurst for Sears and sold under the Roger Penske name, along with a whole host of name-brand speed equipment being sold by Sears under that name. The Sears-Penske-Hurst three-



speed and four-speed models include all of the well-known Hurst features and are available for most domestic applications. Sears also sells the three-speed Synchro Loc and four-speed Competition Plus models under the Hurst name, as well as many Hurst shifter accessories, such as the Reverse Loc-Out kit and Hurst T-handles. With stores all across the country, Sears provides quick availability of all Penske and Hurst shifter models.

SEGAL AUTOMOTIVE PRODUCTS

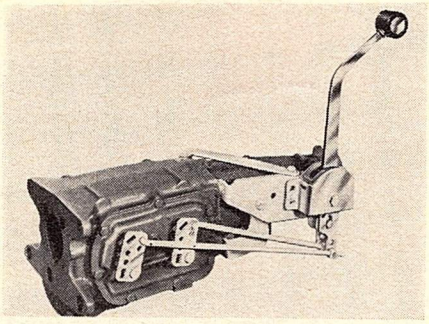
Segal Automotive Products offers this sporty-looking shifter for Volkswagens that is available with either a curved or a straight handle and is also available with



or without the console. This shifter has been designed to give a more positive feel for VWs, and when used with the Segal Quick Shift kit, will yield a 40% shorter throw for your shifts. Complete installation can be handled in minutes, and the retail price of the shifter unit itself is lower than many of the other VW shifters on the market.

SPARKOMATIC CORPORATION

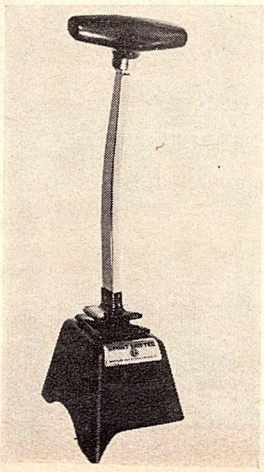
Sparkomatic is the manufacturer of a complete line of economically priced high-quality shifters. There are three three-speeds, led by the Competition Tri-



ple Pattern, shown in the photo, that allows three different shift patterns with the same shifter. The Straight-H Dual Pattern is the next model, followed by the super-econo model called Mr. Shift. Fast, positive gear selection for automatics is provided with the Competition Powershift unit that eliminates the loose, erratic action found in some original-equipment shifters. Still another offering from Sparkomatic is the Competition VW shifter that features a rugged chrome handle, 40% shorter throw for faster shifts, spring-loaded reverse selector, and a black cycolac console complete with soft vinyl boot. Sparkomatic shifters are attractively packaged and can be purchased at speed shops and chain stores nationwide.

SUPERIOR INDUSTIRES

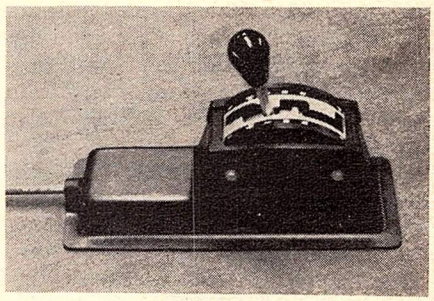
Superior Industries offers a "Superior" shifter for VWs called the 500 Sport Shifter. This unit incorporates many of the finest engineering features found in a VW shifter, such as the short-shift pat-



tern that reduces the throw by 40%, spring-loaded lever to eliminate the necessity of depressing the stick to find reverse, and easy installation. The chrome lever is topped by a wooden T-handle and comes complete with a low-profile floor console. Superior products such as this reasonably priced VW shifter can be found at most speed shops.

WINTERS TRANSMISSION

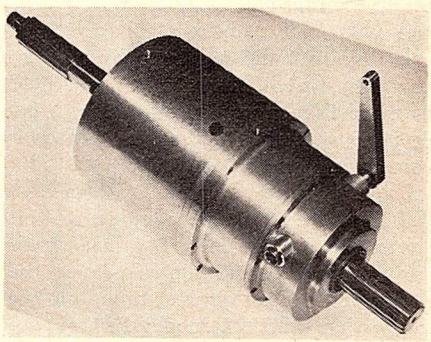
Winters, a well-known name in drag racing, produces this cable-type shifter for use with almost all American-made late-model automatic transmissions. The unit is available with the standard shift pattern (PRN321) or reverse shift pattern (PRN123), is suitable for both



street and strip applications, and can be ordered with telltale colored lights to indicate gear position. Installation is very easy, but the retail price of slightly over $100 puts this unit out of the economy class.

B&J RACING TRANSMISSIONS

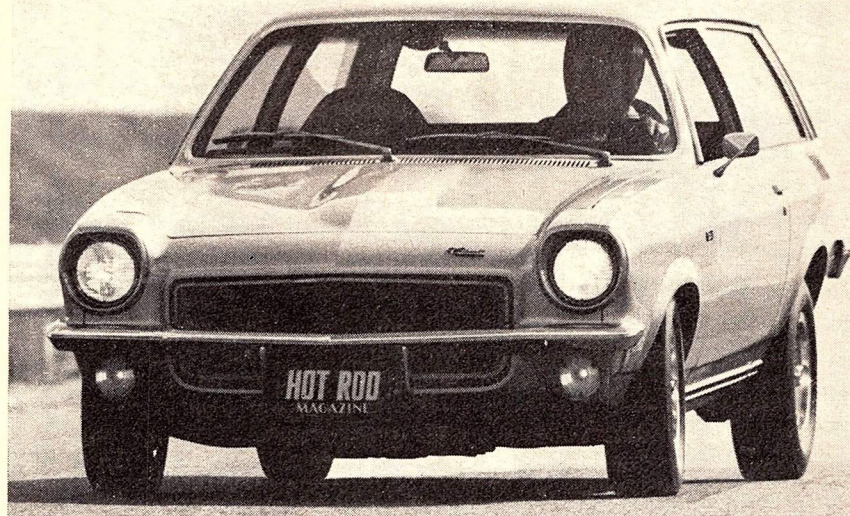
The B&J shifter shown in the photo is definitely the most expensive shifter that we found while compiling the information for this Buyer's Guide. The retail



price is $1310.00 (that's one thousand, three hundred and ten dollars . . . for a shifter?), but the racer's net price is only $1179. Whew! What a relief! Of course for that kind of money you'd better get more than just a shifter, and you do. Also included in that price is a two-speed transmission complete with a reverser. The only problem is that this unit is intended for use in Funny Cars, so it won't be much good to you unless you have one. In case you don't, try one of the other fine shifters listed on the preceding pages in your street or strip machine. We think you'll like each and every one of them! ■■

DON'T CALL IT A STATION WAGON

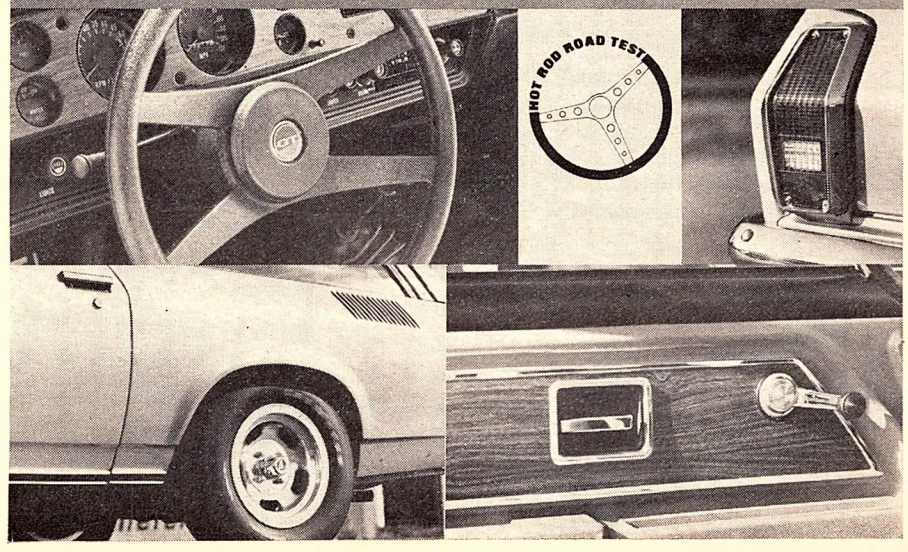
How can Chevy fail? In their second year of mini-car building they're outselling their production output, even though the comparable imports are lower-priced and have better quality

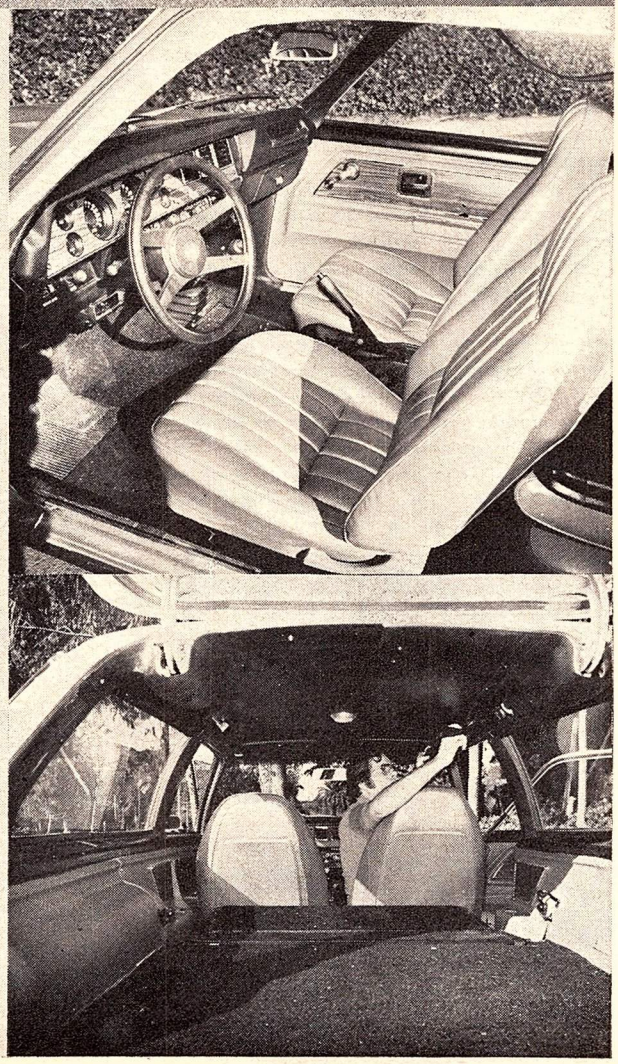


By Steve Kelly ■ We were driving out Sunset Boulevard toward the Pacific Ocean, and on a Vega in front of us was a bumper sticker saying "Imported from Lordstown, Ohio." It had a dealer license plate on it; and when we drove by it, the man behind the wheel, in a show of sports car camaraderie, gave a slight tap on the horn. Most likely he sells Chevys, and likes to tell potential customers about how All-American Chevrolet is building an All-American mini-Chevrolet to stem the tide of foreign cars. Good for him, and good luck.

The Vega is All-American only when built with the new Turbo-Hydro (THM375) three-speed automatic or the two-speed Powerglide. Stick-shift Vegas use a transmission built in Germany by Opel. This is hardly a drawback. The tough thing for Chevy to sell when faced with cars imported from well outside of Lordstown, Ohio, is price and quality. We had a Vega last year much better in quality, though still in the same price range as our '72 Vega Kammback. Our '72 GT Kammback had a water leak around the rear hatch opening and a clock (part of the over-$300 GT option) that didn't work. Neither did the right-door courtesy light switch. And this car was held up more than a week to make sure everything was in top shape. Wonder what it was like before?

Looking back to our '71 Vega test (HRM, Nov. '70) and comparing that car to the '72, we feel that last year's car was better handling. We know the '71 ran faster in a quarter-mile, and we know why. The '72 model L11 engine (the 90 net horsepower optional engine) now has an air injection pump which causes a horsepower draw, due to its belt drive. All Vega engines built for sale in California use the L11 camshaft, which has a higher valve lift and longer duration. The possible performance gain from increased camshaft overlap and lift (a method used for reduction of nitrous oxide emissions) was more than offset by the addition of the power-robbing pump. This, plus the inclusion of an air conditioner and the added weight of our Kammback versus our '71 test car, caused quarter-mile performance to be down .8-second on our most recent test Vega. Another reason the GT





ABOVE—Three doors and a tilt-forward hood make for easy access to most everything on the GT Kammback Vega.

RIGHT—High-back buckets are really neat to sit in, and adjustable back rest on driver's helps on long trips. Thick-rim wheel is great.

BELOW RIGHT—Back area holds 50.2 cubic feet of whatever is carried. It is carpeted with very durable material, and floor is sturdy.

OPPOSITE PAGE—Distance from 60 to 0 was 127 feet 6 inches, with wheel hop. Photos on lower part of page point out "glamour" parts, including aluminum Appliance wheels.

photography: Gerry Stiles

wagon hovered near the 19-second bracket was its inability to leave the line above engine idle speed without severe wheel hop. We needed only one stab off the Orange County International Raceway starting line to know that if we did it again, something would shatter. There is also noticeable wheel hop when power shifting between first and second gears, and a trace of it shows up during hard braking from 60 mph. Our '71 also had wheel hop, but it was fairly controllable off the line, and was never noticed again, not even during braking tests. This wheel-hop condition is due to the tight packaging of the rear end to the body. The rear seat cavity crowds the rear-end housing for space, leaving very little room for altering the rear suspension control arm location. Getting the present short control arms to where they are now was quite a chore, but Chevrolet is remiss in letting them stay as they are. Longer arms or a different location are steps that could be taken to remedy wheel hop. Even leaf springs would be a cure. As long as Chevrolet continues to claim they'll make improvements on the Vega as they are needed, we'll be glad to offer suggestions. There are several equipment makers now offering "track" and "anti-hop" bars for the Vega, and because we're going to follow up this test with some improvements of our own to the GT wagon, we'll soon be installing a set.

Back when we carried the '72 introduction features, we named the Vega GT as our "Best Buy" pick of the Chevrolet line. We just couldn't pick any other model. Any car that starts its second year of existence with a revolutionary new item like a glove compartment is a natural winner. Last year's Vega didn't have one. There's more to our reasoning than just a glove box.

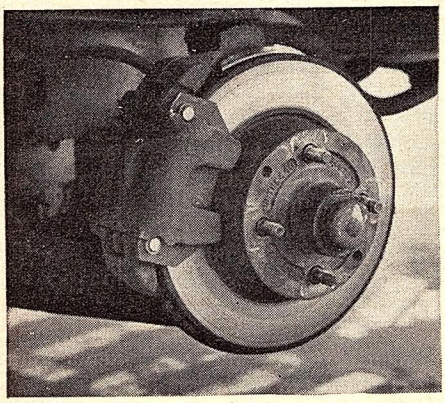
Appearance of the Vega makes it a mini-Camaro, but the insurance companies don't see it that way. They class it in the compact range, no matter which engine you order, the standard 80 horses, or that 90-horse brute, the L11. Even the GT package doesn't hurt insurance payments. Because it is a good-looking car, and partly because it is a Chevrolet, nearly every aftermarket equipment company has developed some kind of new or better part for the Vega. Custom wheels are a prime item, and on our GT we installed a set of 13- x 5.5-inch Appliance Plating aluminum wheels. Appliance's highly polished one-piece wheels are actually .5-inch narrower than the stock GT wheels. But because the 6-inch Vega GT wheels are actually inset (so are the stock 5-inch wheels), and the Appliance wheels are slightly offset, the ½-inch-narrower wheels increase tread width by about ¼-inch. Other after-

(Continued on following page)

DON'T CALL IT A STATION WAGON

market items obtainable for the Vega are heavy-duty shocks, bolt-on body pieces like air dams and spoilers, interior consoles, blowers and turbochargers.

We were surprised to find the GT Kammback didn't handle any better than the car we had last year. It really didn't bend around corners as well. It seems softer sprung, and we know it has higher ride height. The later edition Vegas (beginning about December '70) are higher, because the early models wouldn't always clear a car wash rack. The lower studs of the rear shocks were the offenders, and to cure this, ride height for all models was increased almost ¼-inch. However, even the added ground clearance isn't cause for the car to lean and "float" as much as the GT does. But don't get the idea it corners like an Oscar Mayer wiener.

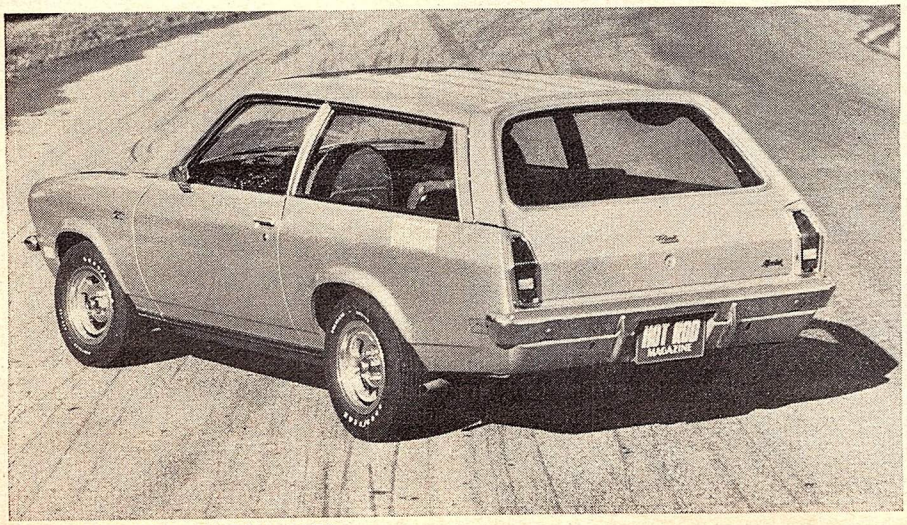


The A70-13 Goodyears stick even when the car is slightly understeering, and while the car may look "bent" from the outside, from behind the wheel the GT Vega is controllable and predictable. About the only thing that could really make the car handle poorly would be a heavier engine and/or 300 horsepower.

Highway and street driving is excellent. Vision is likewise. Interior comfort is excellent, except that the driver's seat doesn't have another inch of rearward travel. Rear-seat legroom does not exist unless the driver is five feet three. The four-speed shifter is right where your hand seems to fall, and the thick-rimmed steering wheel (standard with the GT, otherwise $15) is just right for all-day holding. One of our first long-distance trips in this car was between Phoenix and L.A., a bit over 400 miles, and this was on the day the car was delivered. We made more stops than planned, mostly because of the smallish, 11-gallon fuel tank. But our drive covered mountains and desert, hot weather and cold, and even a sandstorm. We never stopped because we were uncomfortable, only because of the angle of the gas gauge needle. One option everyone can appreciate is the adjustable driver's seat back.

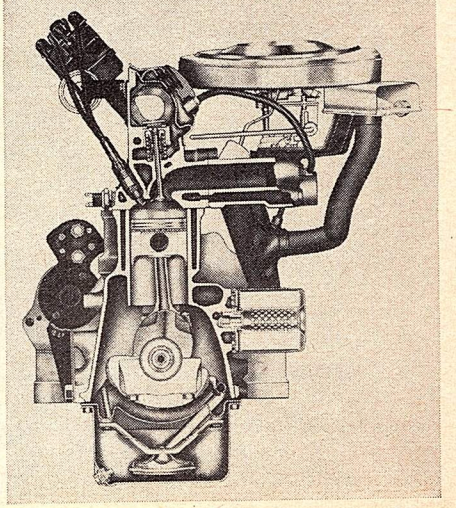
Little cars are tomorrow's cars, and we'll be glad to see more of them. Vega GT wagons make sense. They hold people comfortably, (though not large ones in the back seat), and they carry spare parts in the cargo section. The car never *looks* like something you "had to buy" just to haul a load of groceries or kids. It's the kind of car we'd buy to look good in, work on, add to, and wash once a week. ■■

LEFT — Front disc brakes are standard on all Vegas. Power assist not available. BELOW — Kammback looks good from every angle. Rear fender louvers are for flow-through ventilation. BELOW RIGHT — Cutaway of 140-cu.-in. engine doesn't show any cylinder liners on aluminum blocks, as there aren't any.



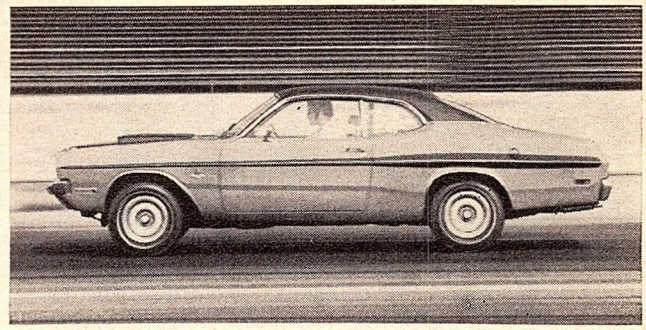
1972 VEGA KAMMBACK

VEHICLE . . . Chevy Vega 2300 GT Wagon
PRICE . . . Base, $2246.00; as tested, $3197.75
ENGINE . . . OHC 4-cylinder in-line; high chrome cast alloy iron head; die-cast high-silicon aluminum alloy block. 3.501-in. bore x 3.625-in. stroke. 140 cu. in. 8.00:1 compression. 90 net hp @ 4800 rpm, 121 lbs.-ft. net torque @ 28-3200 rpm
CARBURETION . . . Single Rochester downdraft 2-bbl. 1.44-in.-diameter barrel size
VALVE TRAIN . . . Solid, direct-acting lifters with external adjustment. 1.620-in.-dia. intake valve opens 28° BTC, closes 70° ABC, 278° duration. 1.375-in.-dia. exhaust valve opens 91° BC, closes 55° ATC, 326° duration. Valve opening overlap: 83. All valves have stellite face
DRIVE TRAIN . . . 4-speed all-synchro, floor-mount-shifter manual trans. Ratios: 3.43:1, 2.16:I, 1.37:1, 1.00:1, 6.50-inch-dia. ring gear, 3.36:1 axle ratio
BRAKES . . . Front disc/rear drum (standard). Power assist not available. 9.88-in.-outside-dia. front rotor; 9.0-in.-dia. composite cast-iron rear drum. 67.2-sq.-in. effective lining area
WHEELS & TIRES . . . Goodyear Polyglas A70-13 tires on Appliance Plating 5.5- x 13-inch one-piece aluminum wheels
SUSPENSION . . . Front: Independent with 122-lb.-per-inch (wheel rate) coil springs and center-mounted tube shocks. Steel, .875-in.-dia. stabilizer bar
Rear: Salisbury-type coil spring suspended rear axle with upper and lower control arms. Spring rate @ wheel: 156 lb. per inch. Linkless, .75-in.-dia. stabilizer bar
STEERING . . . Semi-reversible, recirculating anti-friction bearings, Saginaw design. Manual gear ratio: 20.9:1 Overall ratio: 22.5:1. 4.4 wheel turns, lock to lock, 15.25- x 14.75-inch wheel. 33.0 ft. curb-to-curb turn dia.
PERFORMANCE . . . Quarter-mile (best): 18.961 sec., 71.14 mph
DIMENSIONS . . . Wheelbase: 97.0 in.; front track: 55.1 in.; rear track: 54.1 in.; overall height: 52.0 in.; overall width: 65.4 in.; overall length: 169.7 in.; test weight: 2635 lb.; shipping weight: 2460 lb.; body/frame construction: integral body/frame; fuel tank capacity: 11 gal.



Deep-Breathing DEMON

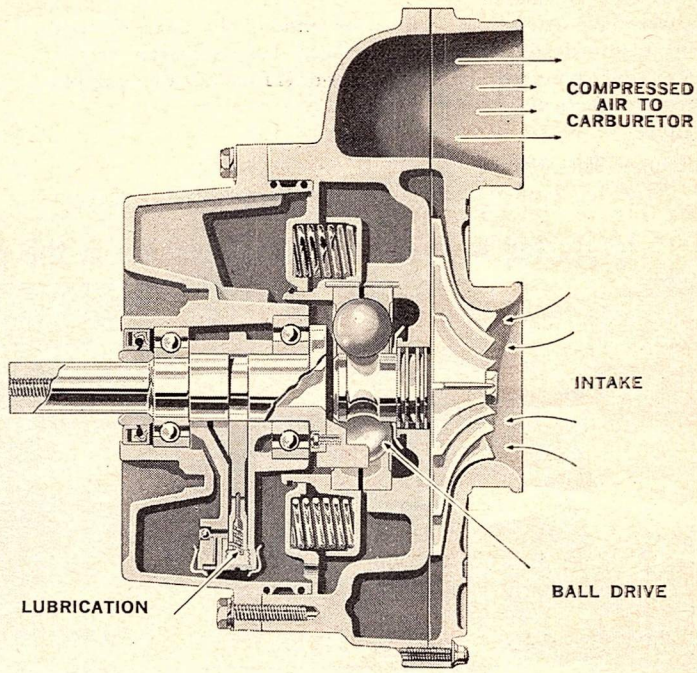
Dodge lowered the compression ratio, Paxton added a supercharger and Mr. Norm turned out a super Demon. No noise, no dirt and no sweat

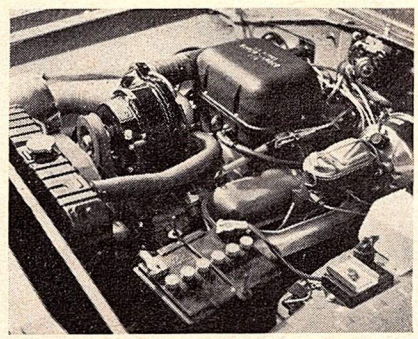


• "One thing we've got to do is to work on the automatic so it'll shift by itself at 6000. Right now it drops over at 3700, and this car wants to run six grand easily." So said Joe Granatelli, the president of Paxton Products, as we were tooling down the freeway. The two of us were testing out a Paxton-blown Dodge Demon, a car available from Mr. Norm's Grand Spaulding Dodge dealership in Chicago for less than $3500. The base (and original) Mr. Norm GSS Demon was covered in our May '71 issue (pp. 118-120), and while it did run sub-14-second quarter-mile times, the supercharged GSS has the earlier model well covered. And the '72 model has 8.5:1 compression ratio, while the '71 model had 10.5:1. Joe, the elder of the Granatelli brothers, has been a vociferous advocate of supercharging since flathead Ford engines were available from a new car dealer. He's even more sold on them now that anti-pollution restrictions have caused compression ratios to go down. Low compression adds to the acceptability of a blower to an engine.

"Look at this setup." This is Joe's lead-in. "All the stock plumbing is intact. We've also got two check valves so that nothing can blow back into the valve cover or carbon cannister (evaporative emission control device), and we're running leaner supercharged than when the car was normally aspirated."

Joe Granatelli is right. The stock Dodge Demon showed a 14.0:1 air/fuel mixture as it came from the factory with a Thermo• Quad four-barrel carb and three-speed automatic. At 3000 rpm, the supercharged (by Paxton) Demon showed a fuel/air mix of 14.5:1, and at times ran near to 14.7:1. This means it is burning less fuel at 65-70 mph in supercharged form than when it is normally aspirated. Actual blower pressure, in pounds, is around 7 psi; and even with this added pressure, there is no harm done to the stock 340 Dodge engine. It idles at 600 rpm, though it is normally set at 800, and will top 6100 in low gear without detonation or failure to the head gasket. Unlike turbochargers, blowers such as the Paxton don't depend on a waste-gate arrangement to bleed off unwanted pressure, particularly at the low end. The Paxton blower is belt-driven; therefore, the speed of the blower is directly proportional to the speed of the engine. The blower pressure can be altered by changing to a smaller or larger drive pulley which will result in higher or lower input pressures, respectively. Also, unlike turbochargers, direct-drive blowers go into action immediately. In other words, when you leave, it's working. It should be no surprise to those who have driven a nonsupercharged GSS from Mr. Norm's that the Paxton-blown version runs the quarter-mile in about 13.6 seconds, and goes from zero to 60 miles per hour in just over 5.5 seconds. This is a very substantial gain over what we ran with the three-speed-stick 340 Demon from Mr. Norm last year, and it had 10.5:1 innards.





ABOVE — Cutaway of Paxton blower shows inner workings. Lubrication reservoir is filled with automatic transmission fluid. Air filter is mandatory with Paxton.

LEFT — All emission control lines leading to cast-aluminum carb box have check valves to prevent "incoming" from suddendly becoming "outgoing."

Just about everything that is stock with the 340 GSS Demon remains on the car when the blower is added, even the stock mechanical fuel pump. The Carter four-barrel is housed within a pressure box, because this route is easier than "pressurizing" the carburetor. The stock pump is "pressurized" by way of running a line from the Paxton to a hole drilled just over the diaphragm of the fuel pump. This is all that's needed for the fuel delivery system to work.

We don't know what else a person could want from a Demon 340 after Norm Kraus and Joe Granatelli (quite an ethnic combination) finish with it, except maybe a higher shifting automatic. ■■

By John Dianna ■ In keeping with the sophistication of today's racing, the specialty equipment piston manufacturers have incorporated some very interesting approaches toward piston designs. New dome configurations, exotic coatings, efficient ring combinations and stronger skirt designs have been employed in an effort to further aid the racers in reaching even more fantastic performance levels.

Down through the years, cylinder sealing and compression ratios have been important factors for an optimum-horsepower-producing engine. In addition, complete combustion has been an area where many enthusiasts have been involved but kept their findings a closely guarded secret. Piston-dome configurations for modified-type engines have been varied greatly in an effort to obtain better flame propagation, and many well-read racers have carried this point even further by coordinating piston-dome and combustion-chamber designs. The two go hand in hand, and there is horsepower to be found for those who dig deeply enough into the subject.

We have attempted to uncover some of the more interesting piston designs that have recently been released, and we feel that some may be of interest and possibly fit your particular application.

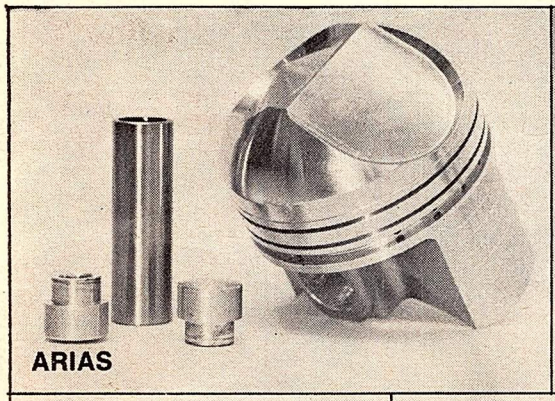
ARIAS
(Slipper-Skirt Piston)

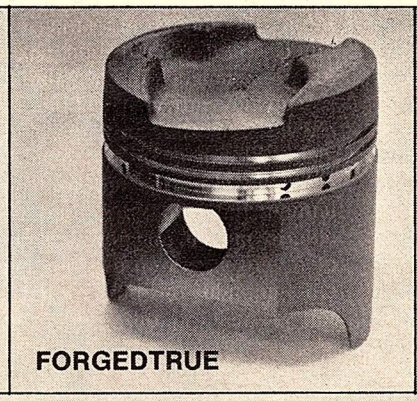
Arias has broken away from conventional aftermarket piston designs with their new slipper-skirt S/S series pistons. Claims are that the piston offers lightness, but not at the expense of strength. When compared to a conventional elliptical piston with a normal cam grind, the S/S piston is said to have less wall drag and greater strength around the pin-boss areas. The small skirt contact areas at the thrust sides of the piston are ground with a slight cam (similar to a full-skirt piston); however, the difference is this: When a full-skirt piston is ground with a greater amount of cam for less wall contact (primary reason for cam on a piston is for expansion in the pin-boss area under high heat conditions), it normally requires a stronger piston for adequate rigidity (pistons crack at piston skirt and pin-boss intersection); and this consequently increases the overall piston weight. By design, the S/S piston has less wall contact and therefore doesn't require exotic cam grinds. Another feature of the piston wall loading characteristics is ring sealing. The Arias design helps load the ring a full 360° for more efficient control of combustion pressures (this is due to stability of the piston).

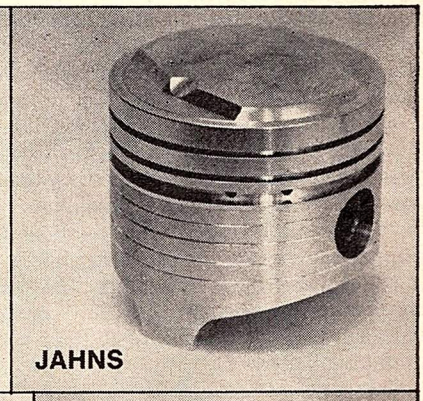
The pistons come with lightening holes (drilled through the pin bosses) and any ring combination. Arias recommends their Step Seal top compression ring for all racing applications. This ring has a stepped end gap to cut down blowby past the ends of the ring. Wrist pins are tapered-bore 4340 chrome moly steel, machined for aluminum re-

Interested in the recent developments in the piston industry? Here are a few of the latest

PISTON POTPOURRI


ARIAS

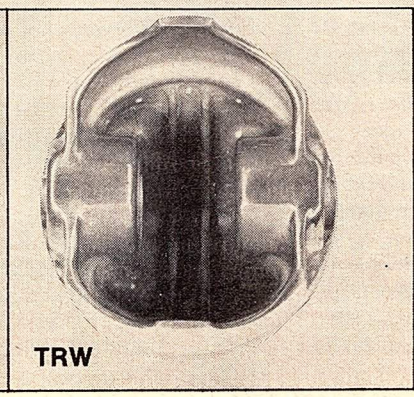

FORGEDTRUE

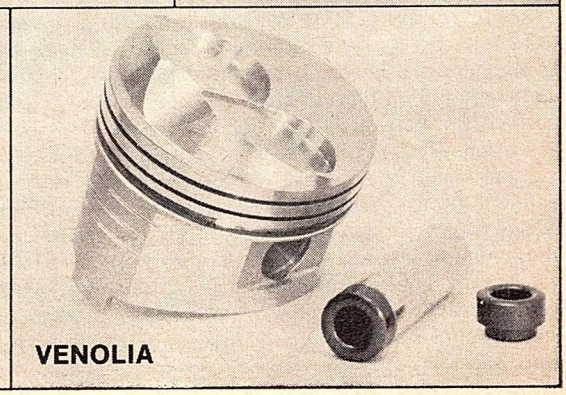

JAHNS


JE PISTONS


MONDELLO


SPEARCO


TRW


VENOLIA

taining buttons (pin locks).

Availability of the S/S pistons is slated for all popular engines; however, the first new forging is the Pro Stock Hemi piston with a one-inch dome. The dome is pretapered to eliminate the additional machining normally required when building a high-compression race Hemi engine. As Arias says, ". . . these pistons are ready to race."

FORGEDTRUE

(Teflon II Coated Forged Aluminum Vega Pistons)

Forgedtrue has developed a new piston for aluminum Vega engines. The forging is made from 2618 aircraft aluminum, which contains almost no silicon. This alloy is specially formulated for use with the Vega's aluminum cylinder block and differs from the OEM cast aluminum piston alloy. The 2618 formulation contains almost no silicon, which makes the pistons more compatible with the aluminum block. The Teflon II coating is applied to the pistons to insure against galling during the break-in period.

Dealer-shelf-stocked Forgedtrue Vega pistons will raise the 8.5:1 compression ratio to around 11.5:1; however, lower compression ratios are available on a special-order basis. If desired, the 11.5 ratio can be lowered simply by milling the piston domes on a mill or lathe. The Forgedtrue pistons replace the OEM units without modifications, and the swap should cost about $75, not including the purchase price of the pistons. The pistons are machined to accept the stock wrist pins, so if you desire full-floating pins, it will be necessary to pin-fit the pistons and machine for pin locks. Of course this will also necessitate shortening the pins. If you don't mind waiting, pistons can be ordered with full-floating pins that have more meat in the pin-boss area to accept the stock-length pins and the pin locks.

The pistons are available up to .040-inch overbore. The stock ring combination is retained, using 5/64-, 5/64- and 3/16-inch rings. Custom ring combinations are also available, but again the pistons must be made to order. Forgedtrue has spent considerable development time and dyno-testing on these new pistons, and their findings prove the pistons to be both power-producing and dependable.

JAHNS

(Forged Pinto Piston)

Jahns has engineered a very popular piston line to fit Pinto engines. They offer these new pistons in either cast or forged aluminum and can make them to order. Off-the-shelf pistons raise the stock 9.0:1 ratio to 12.0:1 when fitted with a minimum specification head (that is, with the head cut so the combustion chambers hold the correct amount of cc). Ring combinations vary, as well as available lightening procedures. Jahns will machine the pistons to your specific demands. Their forged piston is designed for all-out racing engines and for use with a turbocharger; however, both the cast and forged pistons will give good general street performance. Both piston designs are available for the 2000cc Pinto engine, but only a cast piston is currently made for the 1600cc engine. Installation requires no major modifications and offers a new, more impressive kick.

JE PISTONS

(Angle-Plug 302 Chevy Pistons)

JE has enlarged their popular Super 500 line with the addition of an angle-plug-type 302 Chevy piston. The deflector is machine-profiled for angle-plug heads. Dome heights can be varied to suit particular needs and can also be obtained in an open-chamber design with a .375-inch pad. Individual valve pockets are machined so that maximum compression ratios are obtainable. The new Super 500 302 pistons are available in bore sizes from 3.935 to 4.060 inches. As an added feature, piston weights and ring combinations are available to meet specific installation requirements.

MONDELLO

(Small-Block-Chevy Open-Chamber Pistons)

Joe Mondello has developed a total performance package for the small-block Chevy engine. The package consists of reworked cylinder heads with an open-chamber combustion design and matching pistons. These pistons feature full domes that are shaped to fill the combustion chambers. The pistons are available in bore sizes from 3.812 to 4.155 inches and are made exclusively for Mondello by Venolia. There are two sets of heads that fit the dome design: street/strip and all-out competition. The heads are available as complete assemblies, bare castings, or Mondello will modify your existing cores to accept the full-dome pistons. As is the case with most aftermarket pistons, they are available with various ring combinations to suit the customer.

SPEARCO

(Forged Pinto Piston)

Spearco now offers a forged aluminum piston for the two-liter Pinto engine that gives additional compression ratio. With a stock head, the Spearco piston design will permit a possible 10.5:1 compression ratio. However, with .060-inch milled from the head surface, the ratio will fall at about 11.5:1. The piston dome has been specially designed to control flame propagation and give adequate clearance for oversize valves. Standard Pinto rings are recommended, and only standard-bore pistons are stocked. Oversize pistons are available on a special-order basis.

TRW

(Unfinished Big-Block Chevy Pistons)

TRW has the reputation for making exceptionally strong efficient pistons for budget-minded racers. Their newest piston for the big-block 427-454 Chevy rat motors is an answer to the racer's prayers. The new TRW piston (parts No. L 2362-.030) is basically an unfinished open-chamber design. Valve pockets are shaped to accept .640-inch valve lift. Skirths are finished for .030 +-inch overbore and include the famous wavy oil-control pattern so popular with TRW pistons. For additional strength, the insides of the skirts are reinforced with ribs. The big news is the fact that the top ring groove is *not* machined. The piston comes fitted with only the second compression (1/16-inch) and oil ring (3/16-inch) grooves; this way you can select the style and placement of the top ring. To fit the various engine displacements, the pin holes are also left out. To aid machining of the ring grooves and pin bores, the machining locator (top of piston) and bottom skirt lugs are left on the pistons. From all indications, this piston will receive a great amount of success with the big-block-Chevy racers when it becomes available in June.

VENOLIA

(Lightweight Racing Pistons)

Once known for their top-quality blown fueler pistons, Venolia has now broadened their horizons by developing what is referred to as an "Ultimate Junior Stock" piston. These pistons made for the new Super Stock class are super-light, machined forgings. Pistons are available with the relocated top compression ring that's so popular these days and can be ordered with a custom valve-relief layout. All popular engine makes can be fitted, as well as many Modified Production applications. Venolia has designed open-chamber dome configurations for the small-block Chevy and has moved right on up to the 426 Hemi with a high-compression dome and unshrouded valve reliefs.

In addition to their latest piston developments, Venolia has cured the pin lock breakage problem with the addition of aluminum buttons. They machine their tapered-bore 4340 chrome moly pins to accept the aluminum buttons. The cylinder walls hold the aluminum plugs in place. To complement their piston line, Venolia has a complete selection of super-light ring assemblies. Their recommendation for a ring combination is a .046-inch chrome-faced stainless steel top compression ring, a cast-iron 1/16-inch reverse-twist second ring and a 3/16-inch three-piece oil ring with chrome rails. All in all, they are geared to meet the racer's custom piston demands. ■■

RACER BY REQUEST

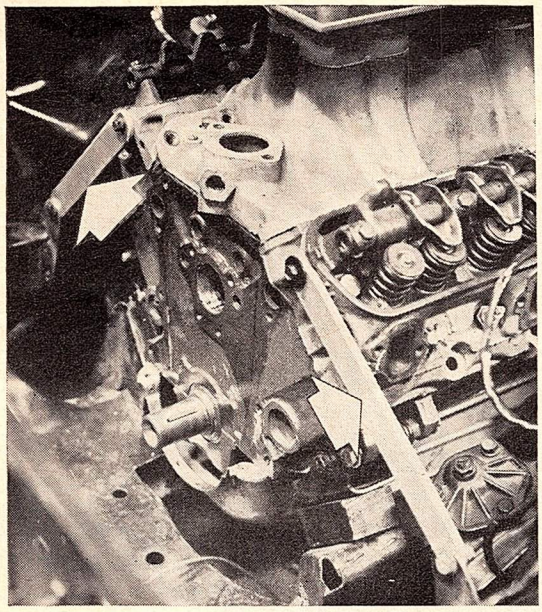
CONCLUSION: STRIP ANALYSIS

By John Dianna ■ If you've been following our Duster race car project over the past two issues, we've taken you through the procedures of building the chassis (first installment) and building the engine (second installment). For our final segment, we'd like to cover some of the problems we encountered while sorting out the car at the strip.

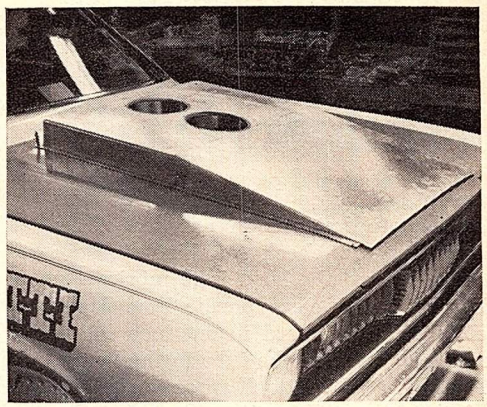
To begin, our basic combination consists of a Racer Brown 71-R cam that was ground on 105° lobe centers, an Edelbrock TR-5 tunnel-ram manifold with Holley 660-cfm (4224) carbs, a Spaulding BDI ignition (set at 37° total advance), Champion N-63 Y spark plugs (usable heat range from N-57 to N-65 Y), Cyclone adjustable headers, 5.87 and 6.17 rear gears, and 10.5-inch (28.5-inch-diameter) Firestone tires.

The Racer cam was installed at 104° intake centerline for our initial outing. Advancing the cam hasn't seemed to affect the car; however, too many degrees did slow the mph. Retarding the cam is not the way to go in any 340 engine, especially one that's been destroked and is pulling 3360 pounds. Changing cam timing on a small-block Plymouth engine is not as easy as on a Chevy, due to the water pump cover and the method in which the cam gear is secured to the camshaft. For ease of cam timing changes, we installed a cam timing device made by Trik Race Car Products. The unit was invented by Ed Hamburger, a New Jersey racer who runs a G/SA 340 Duster. Ed's invention (soon to be available for small- and big-block Chevys and 383, 440 MoPars) enables you to make cam timing changes in a matter of minutes without removing the timing cover. To get at the cam gear, there's a removable plate at the top of the timing cover which allows enough room to reach the set screws with a 1/8-inch Allen wrench. It's a very ingenious device available through Duffy's Performance.

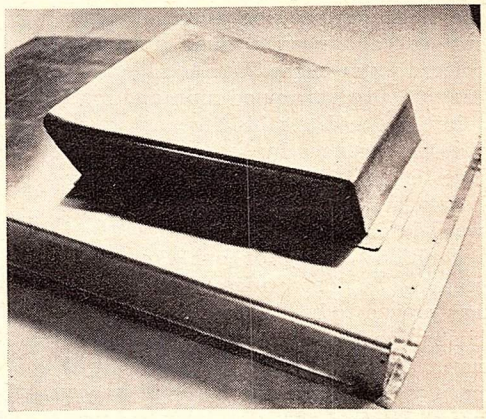
Depending on the extent of the modifications to any 340 engine, Racer Brown has cams that are pretty well proven in the small-block MoPars. For example, a Super Stock-type or semi-modified 340 could possibly use the STX-21 which has 306-degree duration and .560-inch lift. Those engines which are highly modified and are 340 or more inches, coupled with a fairly light body (2800 to 3200 pounds) would do well trying Racer's longer 81-R profile. The 81-R is too much cam (too much duration) for our combination, and actually the 71-R could be considered borderline. Our interests will be leaning toward shortening the cam (possibly as short as 290 degrees) in an effort to increase low-end torque. That the 71-R



The engine torque straps, indicated by arrows, are extremely important in keeping engine from moving side to side during shifts.



Shown being fitted to the hood, the scoop base plate is necessary for two reasons: approach ramp for the scoop inlet and height adjuster to clear carb tops. The base can be made to fit any length or shape hood, and the scoop made so it can be pop-riveted to the base. The scoop inlet area is 30 square inches.



J. R. Smith (shown in photo) was responsible for fitting the John Mason formed aluminum scoop to the hood. J. R. also made the isolation plates for the two induction systems.

was a questionable cam for our combo became evident as we juggled valve lash. The car picked up as we loosened the lash from the recommended clearances. We adjust the lash at .025-inch (intake) and .026-inch (exhaust).

All of our experience with 340 intake manifolding has been using Edelbrock manifolds. Edelbrock's Bobby Meeks and Murray Jensen have spent many dyno hours comparing their various manifold designs for the 340. The TR-5 is most impressive in the higher rpm range and seems to work best with 660-cfm carbs. For strip use, the 660 Holleys were left basically stock, with the exception of leaning the primaries (from No. 76 to No. 75 and, when necessary, No. 73). The secondaries were left stock, using a No. 12 metering plate. The floats were set, using a No. 10 drill for the primary (this is done by turning the float bowl upside down and passing the drill bit between the float and the bowl casting) and a No. 2 drill for the secondary. Care should be taken after the carbs are reassembled, as it's possible for a float to stick and the carb to leak, which could be disastrous (with gas washing the cylinder walls, it's possible to hydraulic a rod or even have a fire). The easiest way to check if a float is stuck open is to turn on the electric fuel pumps and look down through the carbs to see if fuel is running into the engine. If one of the carbs is leaking, simply tap the top of the float bowl with the handle end of a screwdriver or wrench.

There is another mod that is required on the 4224 carbs, and that's reworking the cam profile on the throttle levers. At the bottom of the cam pattern, there is a deep slot about ¼-inch long. This detent allows primary throttle plate opening without tipping the secondaries. The length of the slot determines at what point the secondaries are picked up. Lengthening the slot to ⅝-inch allows cleaner starting and less load-up around the pits. The easiest way to elongate the slot is to separate the carb base from the body and carefully put the base in a small vise and file the lever with a small hand file. There are various discharge nozzles which govern the duration of the accelerator pump squirt, which should be changed according to your car's requirements. We use the No. 336 (brown) accelerator pump lever and the cam arm that operates the pump lever. To check for proper pump stroke, actuate the linkage to full-open position and check the pump lever to make sure it isn't bottoming out the diaphragm. Occasionally recheck the pump lever and the cam arm to make sure one or the other hasn't bent and increased the air gap between them. This could restrict the amount of pump dump. We also occasionally check to make sure we haven't lost wide-open throttle.

In addition to the 660 large-plenum combination, we have reworked the bottom of a TR-5 by isolating the runners and installing a $^{3}/_{16}$-inch plate to seal the lifter galley. This base will be used with a small-plenum dual 4500 setup (actually it can be used with any plenum/carb combination). The carburetors are the smaller 4575 ($1^{11}/_{16}$-inch-venturi) units and are set up to operate with a 30% primary-to-secondary ratio, rather than 1-to-1. Another attempt at finding the ultimate induction system will be an IR manifold with a pair of 4500s. Getting back to the smaller carbs, plenum sizes will be varied, using 600-cfm Holleys on the standard plenum and the 660 carbs on a smaller plenum. Our most recent hood scoop is a take-off on the one used for the Motown Missile. Overall physical dimensions were changed to fit our hood and intake systems, and separate bases were made to accommodate the varying heights of the manifolds and carburetors. The scoops are fitted with a foam isolation plate which separates the entry to the carbs from the engine. This isolation is definitely worth mph. The initial breadbox-type scoop we used didn't show any change, regardless of whether the isolation plate was installed or not,

(Continued on following page)

RACER BY REQUEST

which led us to believe the air was somewhere but not in our scoop. An easy way to check for high-pressure areas around the hood is to fabricate a U-tube, using clear plastic line. Mark off a piece of board in one-inch increments and fasten the tube to the board, forming a "U". Attach an extended end of the tube to questionable points on the hood surface (or above the hood surface) and pour a small amount of colored water in the "U". Accelerate the car to a predetermined mph and maintain this speed. At this time, notate any pressure changes by reading the water level of the U-tube. This can be very beneficial in selecting the height or forward location of the scoop.

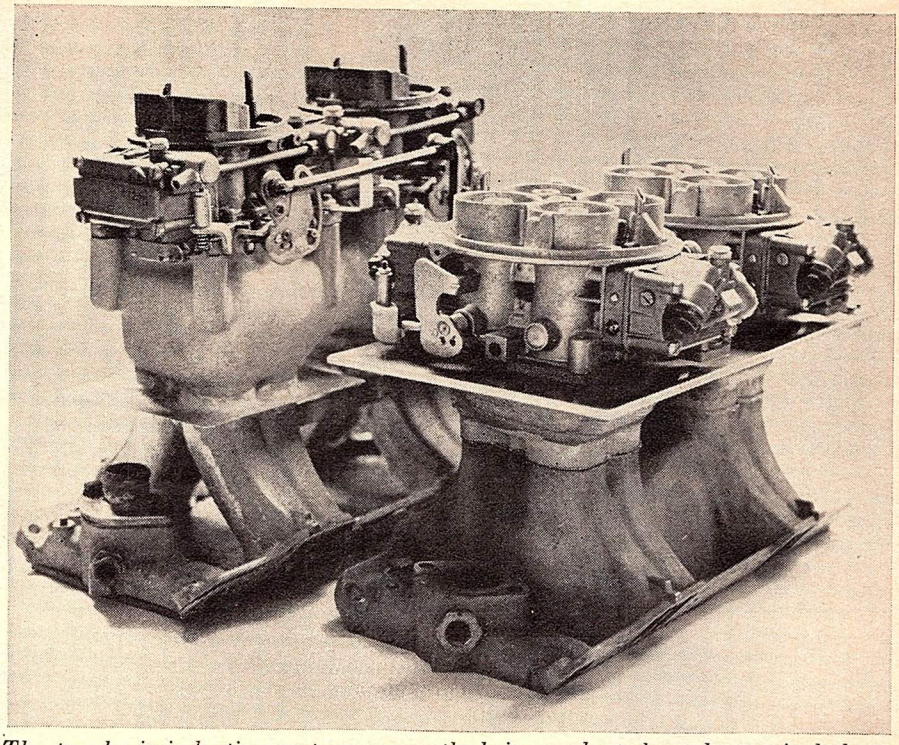
Ignition timing for our car doesn't seem to be that critical; however, 37° has proven to be the best. Due to combustion chamber temperatures, we don't normally run 37°. We usually hold 35° until we're in a position where we can use it. Normal spark plug heat range is N-63 Y. Instead of rejetting the carburetors, we change the spark plugs according to weather and altitude conditions. Plugs are easier to change, and it's simpler to keep track of engine conditions by not varying the carb jetting all over the place. Of course the carbs must be baselined to do this.

The headers we ran most of last season were a two-inch primary Cyclone design. The dyno showed the best horsepower figures using the two-inch pipes 24 inches long, with 20-inch (three-inch-diameter) collectors. On the strip, the headers wanted to be 30 inches in length for the primaries. The change in primary length helped the e.t. but the mph wasn't affected. As you might expect, with the two-inch primary headers it took as much starting-line rpm to launch the car as the engine could put out, and it was still laboring about the middle of first gear. The most logical step was to reduce the primary pipe diameter to 1⅞ inches, and this helped the car considerably. Throttle response was crisper, and the lag in first gear was removed. We still haven't arrived at a final primary header length, but it should fall somewhere between 28 and 32 inches. We still have plans for the two-inch headers, but before they can help the power range, the low-end torque characteristics of the engine will have to be redistributed with another tuning combination and flywheel mass.

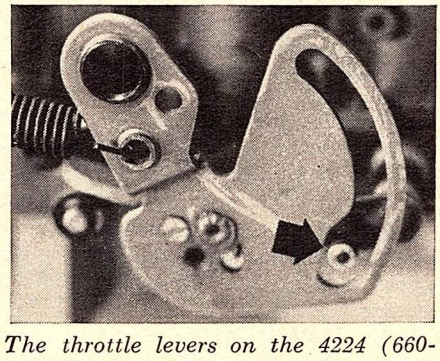
The gear and tire flog is a never-ending task, but the current combo is the 10.5-inch Firestones (28.5 inches tall) and 5.87 gears. Firestone has recently developed a new 9-inch tire (29.5 inches tall) for use with the new Super Stocks that could be just the ticket. It is reportedly the same type of compound and cord construction used on the 7-inch Stocker tires, and the 7-inchers actually worked better than some larger slicks. The reduction in tire width will help our car, as we should be able to achieve the same launch but pull less tire down the strip. Tire growth will determine the gear ratio needed, but the 6.17s look like a probable selection.

Engine heat is a big factor in e.t.'s. Our tuning combo likes to run with a warm engine and cold coolant. We completely flush the engine after each run.

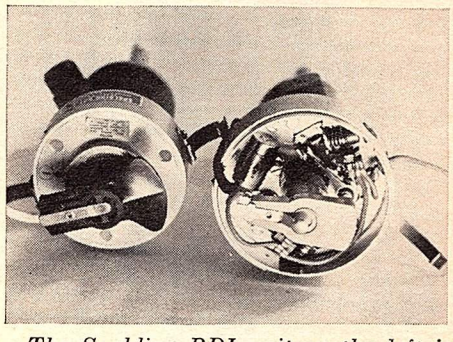
About the only major problem we've had with the car is the oiling system. Due to pan design, we lost two sets of bearings, and once we crashed the oil pan, which cost us another set. During the time we repaired the bearing fail-



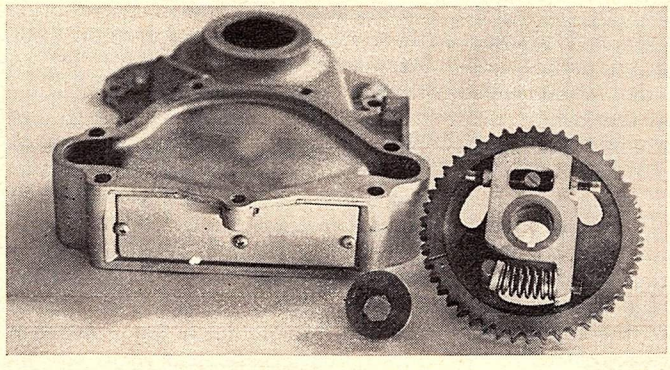
The two basic induction systems currently being evaluated on the car include an Edelbrock TR-5 manifold, small and large plenums and Holley 4224 and 4574 carbs.



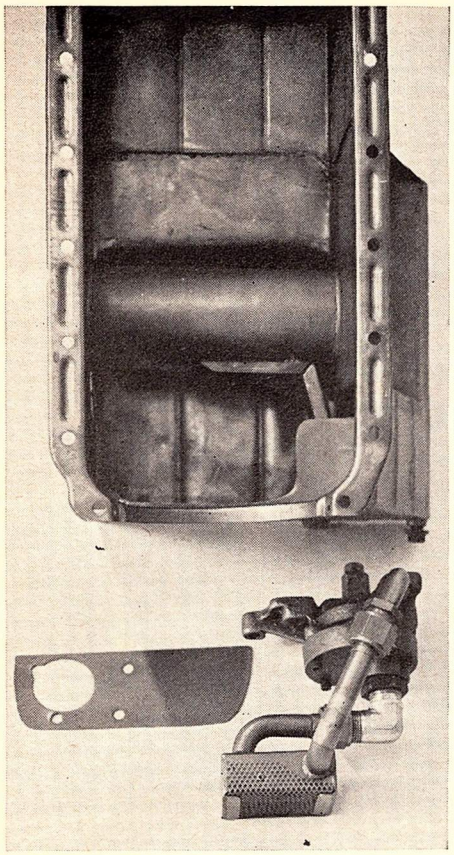
The throttle levers on the 4224 (660-cfm) carbs require some filing to allow an increased primary/secondary gap.

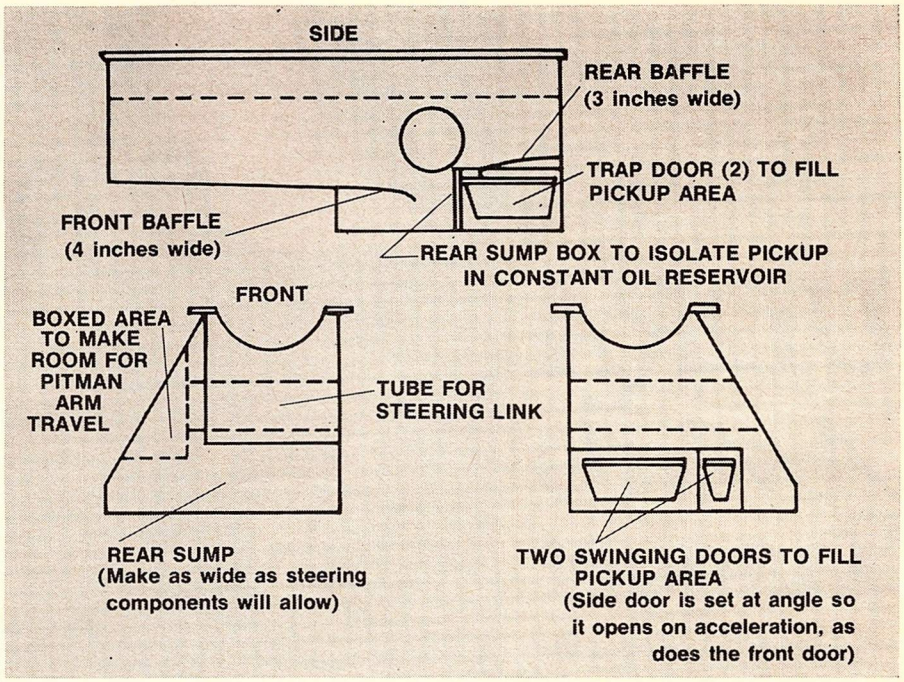


The Spalding BDI unit on the left is sans breaker points; ditto ACCEL's new small-block MoPar distributor.

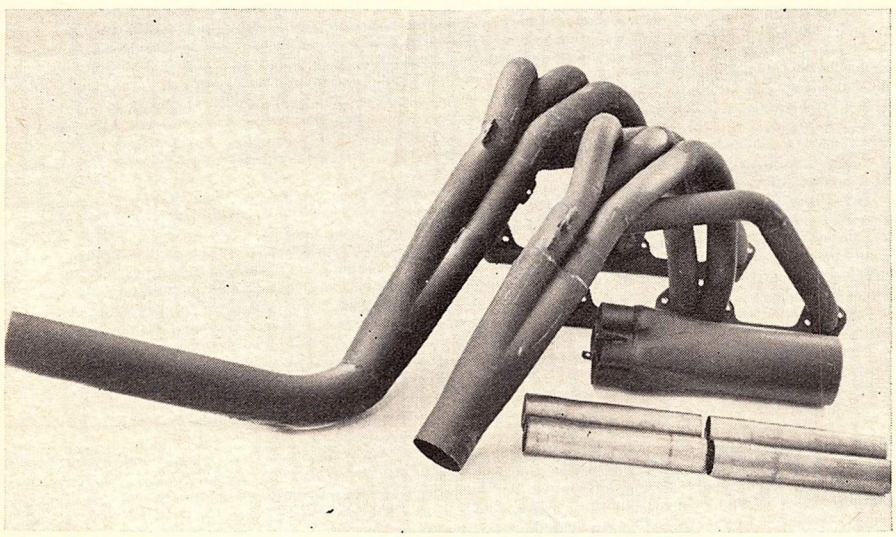


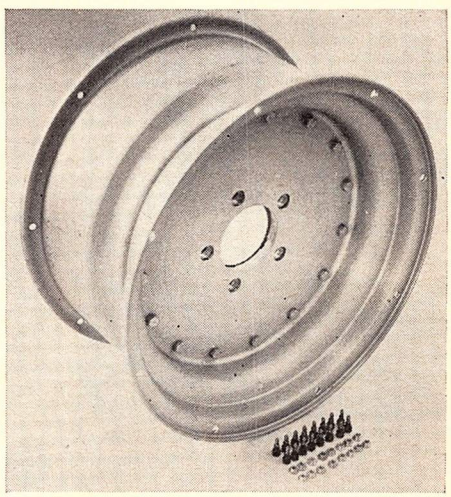
The new cam timing device from Trik Race Car Products really makes changing cam placement an easy task (takes only minutes).

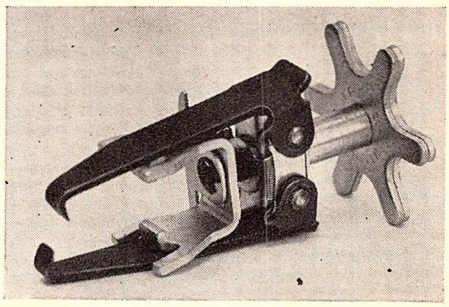




Above is a photo and illustration of the complete pump, pickup and oil pan configuration. The pickup and pan design for a 340 modified engine is extremely critical. It must be made in such a way that the oil pickup is never allowed to suck air. This system (our third) was made up by Milodon and features a dual-line pickup assembly to double-feed the Hemi oil pump rotors. It works well.







The Cyclone adjustable headers we have been using on our car have two important features: They are easy to get on and off, which means we get a lot more accomplished during our tests, and they work. The aluminum Cragar wheel pictured here is one of their new super-light jobs which are now available to the racing public. The machined Allen screws and anchor rings are used to secure the tires to rims. The little tool pictured on the right is a K-D universal valve spring compressor. It's available under parts No. 2078 and sells for $8.50. If you ever have to change a broken valve spring at the track, you'll certainly appreciate this tool.

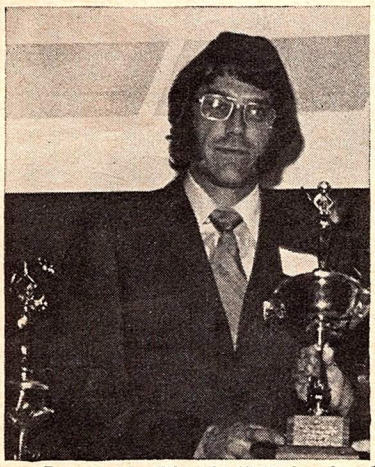
ures and cleaned the trash out of the engine, we constantly changed the pickup system. The most recent is a Milodon-designed dual-line system. It consists of a stationary pickup with dual lines that feed both sides of a Hemi rotor. To keep the pickup covered, the pan was modified with two trap doors and a boxed-in area around the pickup. There's a swinging door at the front of the sump box, and due to the large sump area on the right side of the pan, there is an angled door that permits oil to enter the sump box from the side during acceleration. For a rear baffle, Milodon designed a two-piece affair that seals when the pan is installed. There is a ledge attached to the oil pan and a tray bolted to the bottom of the pump. When the pan is bolted in place, the ledge and tray form the rear baffle.

Other than the problems we've had with the oiling system, the car has been relatively dependable. Ring life isn't what we would like, but that too is currently being worked on. We figure with another year of strip time, performance levels will be such that modified 340s will be common in M/P. ■■

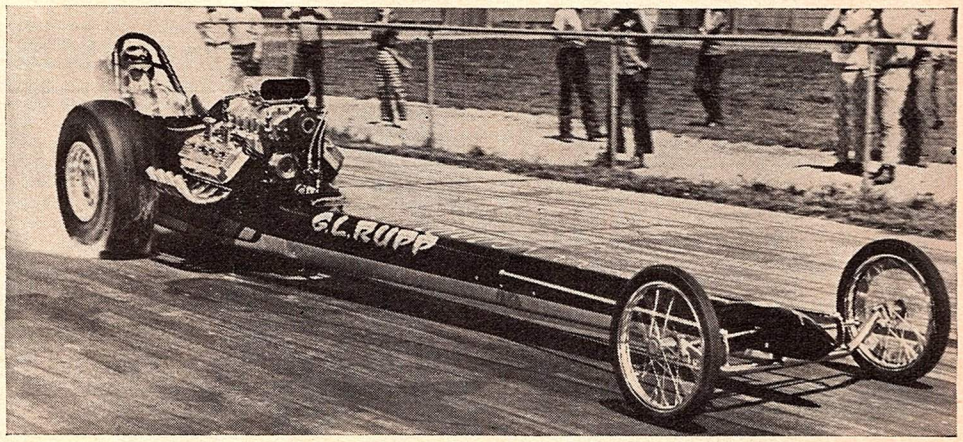
UDRA Awards Banquet

Hot Rod Magazine joins in honoring the best of the United Drag Racers Association

HRM's Steve Kelly and Hurst's Nikki Phillips present trophy to Gary Dyer.

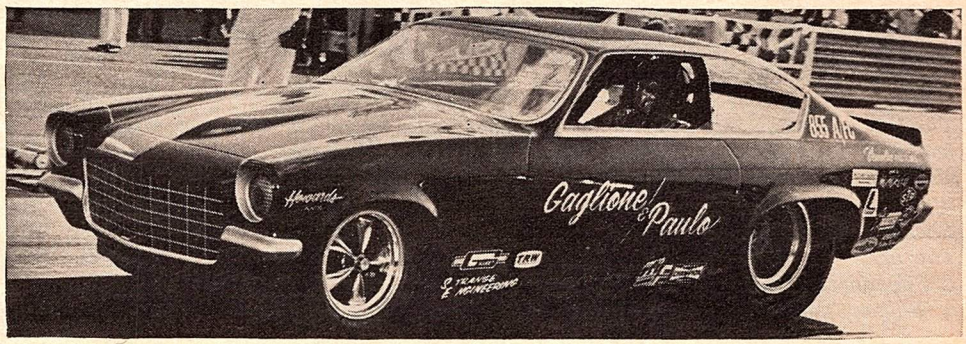


Duane Muelling is "Mechanic of the Year." He worked for it!



G. L. Rupp's digger was an almost obvious choice for "Best Appearing" fueler.

"Rookie" Bob Harvey won circuit and $500 from Road America.



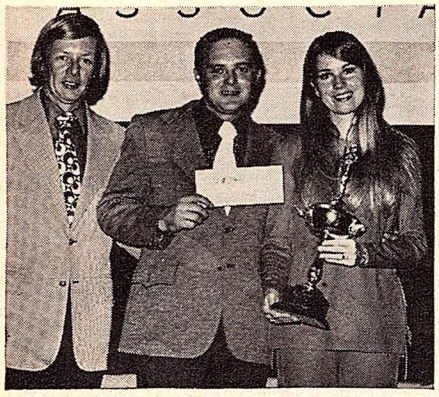
The "Best Engineered" car on the UDRA Injected Funny circuit is Gaglione and Paulo's 'glass Vega.

Jim Wick's Duster even looks good on two wheels. He won our "Best Appearing" Pro Stock car award.

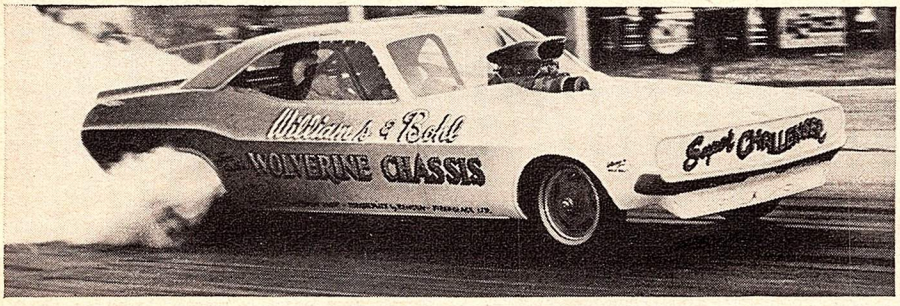
Midwestern racers are lucky, particularly those who race with the United Drag Racers Association. The weather forces them inside during the winter months for occasions like the UDRA Awards Banquet. The banquet, celebrating the 1971 awards and points winners, was held in December at the Playboy Club Hotel in Lake Geneva, Wisconsin. For the first time, *Hot Rod* Magazine joined with UDRA in presenting awards to those racers who ran the full season. We gave fourteen separate awards, one for the Best Engineered Car and one for the Best Appearing Car and Crew in each of the six UDRA divisions, plus awards for Rookie of the Year and Mechanic of the Year. *Hot Rod's* Feature Editor, Steve Kelly, presented the awards.

Other presentations made at the December banquet included the Fontanini-Christensen Memorial Trophy, presented to Gary Dyer by the Kendall Refining Co.; the Kendall Driver of the Year Award, won by Don Schumacher; the Hurst/Schiefer Pro Stock points winner, worth $500 to winner Joe Satmary; and various other awards sponsored by ACCEL Ignition, JR Headers and Road America Ignitions. In tribute to the women who "stand and wait" during the drag racing season, Lieane Fiberglass donated a mink stole as a door prize for one lucky racer's lady. Jon Lundberg did his usual masterful job of wordsmanship via the microphone, and after the banquet ended, late-night parties were hosted by American Dragway Trophy Co., Rachinski-Witz, Jetway Wax Co. and the UDRA Board of Directors. It was a great weekend, filled with great people, and we intend to carry on the *Hot Rod* participation for many years. ■■

Mr. and Mrs. Don Schumacher pose with Kendall's Tom Platt, who presented Don with "Driver of the Year" award.



Pro driver Joe Satmary collected $500 Hurst money from Howard Maeseles (left) and "Best Engineered" award from Hot Rod Magazine.



Williams & Bohl's "Best Engineered" Super Gas Funny uses independent Corvette rear suspension setup.

HOT ROD MAGAZINE AWARD WINNERS

TOP FUEL CIRCUIT
Best Appearing Car and Crew: G. L. Rupp
Best Engineered Car: Bob's Drag Chutes

TOP GAS CIRCUIT
Best Appearing Car and Crew: Burton and Weller
Best Engineered Car: Paris Brothers

INJECTED FUNNY CAR CIRCUIT
Best Appearing Car and Crew: Jack Ditmars
Best Engineered Car: Gaglione and Paulo

SUPERCHARGED GAS FUNNY CAR CIRCUIT
Best Appearing Car and Crew: Ed Elias
Best Engineered Car: Williams and Bohl

PRO STOCK CIRCUIT
Best Appearing Car and Crew: Jim Wick
Best Engineered Car: Joe Satmary

SUPERCHARGED FUNNY CAR CIRCUIT (Fuel)
Best Appearing Car & Crew: Gary Dyer/Mr. Norm
Best Engineered Car: Farkonas, Coil and Minick

MECHANIC OF THE YEAR
Duane Muelling, for his accomplishments with an injected Pontiac Funny

ROOKIE OF THE YEAR
Bob Harvey, for being Pro Stock Circuit points champ in his first year of UDRA competition

JOHN DIANNA'S **STRICTLY FOR STOCKS**

Vanke Builds Duster No. 2
Bobby Warren Goes MoPar
Grump Flogs Small-Block

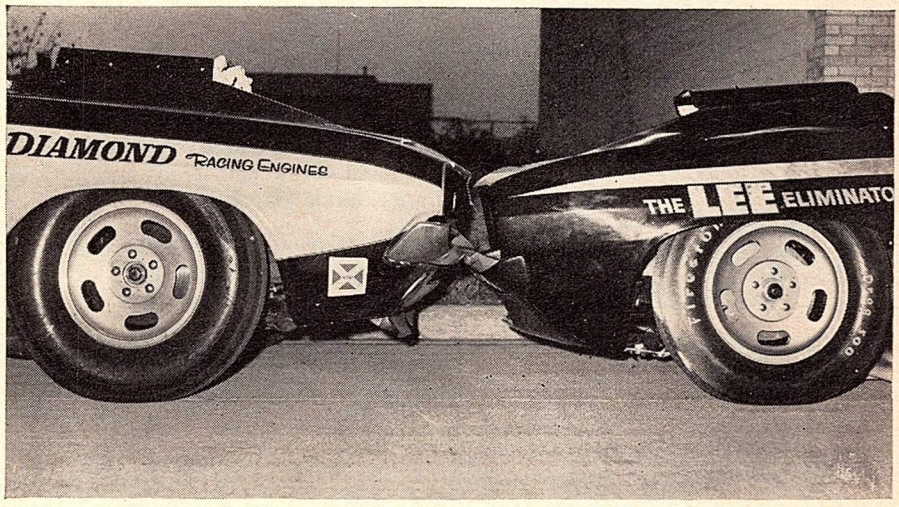
New NHRA Super Stock Factors

NORTH HOLLYWOOD, CALIFORNIA — NHRA has finally completed the Super Stock horsepower factoring for the '72 season. As expected, some engines were factored heavier, others defactored, so to speak. To arrive at figures for the earlier combinations, they checked back through their archives to determine fair horsepower ratings for overlapping engines. For example, a '59 Pontiac with a 345-hp 389 will be rated at 315 hp, due to the fact that the only difference between the 345 and the 315 is the camshaft and valve springs. The '72 models required even more consideration, as Detroit now rates their engines with reduced net horsepower figures rather than corrected brake horsepower (BHP). In these instances, NHRA took into consideration compression ratio changes, valve sizes, carburetor changes, etc., and compared differences to previous engines. The individual changes we were able to uncover as we go to press are: '71 383 (300-hp) Plymouths and Dodges will, for the most part, be bumped one class (this, of course, depends on how a particular combination breaks in class); the 340 '72 engines will be lowered, due to a drop in compression ratio; the '72 400-inch MoPars will be rated at 320 hp (without fresh air) and 330 hp (with the fresh-air package); the '71 and '72 Pontiacs stayed the same; the '69 390-inch SS/D AMX cars will be bumped one class, from SS/D to SS/C; the aluminum and cast-iron-head big-block 396 Chevys have been lowered, so those cars that fall heavy into a class can look forward to running the next lower break; the '70 version of the 402-inch Chevy was also lowered for the '72 season; the '66 and '67 Fairlanes with the medium-riser 427 Ford engines will be dropped a class, although the 428 Cobra Jets will move up. That's all the particulars we have at the time, so we suggest you guys with borderline engine/chassis combinations contact your local NHRA tech director to see just how your car will fall for the '72 season.

FUEL RACER TURNS STOCKER

VAN NUYS, CALIFORNIA — Barry Setzer, of Funny Car fame, will field a new Pro Stocker in '72, in addition to his Vega Funny. The new car will feature an Ed Pink-prepared Rat motor in a Camaro chassis. The car will be driven by Bruce Walker and will be campaigned throughout the United States. It will be interesting to see how the "Old Master" does on carburetors and pump gasoline, without any fuel or blower to aid him.

The Missile Plan of Attack



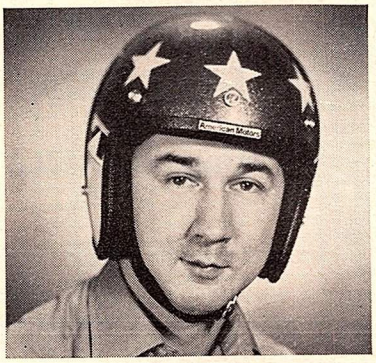
ROYAL OAK, MICHIGAN — If you think the old Missile was low to the ground, just wait till you see the new one. Here's a comparison of the two cars before John Livingston took delivery of the Challenger. Rack and pinion steering, a dry sump and custom-made Cyclone headers allowed the decrease in front-end height. Those slick gold-colored Fenton Gyro wheels were specially painted to add a bit of class to the new Detroit barnstormer.

Wide Open SS Manifold Rule

NORTH HOLLYWOOD, CALIFORNIA — There have been many questions regarding allowable manifolds for the '72 Super Stocks. Many of you will be pleased to learn that any manifold — and that includes a single-plenum ram type — that fits under the stock hood will be allowed. The only restriction is that no modifications will be allowed to the hood or inner hood bracing, and no lowering of the engine will be permitted. Of course the stock carb must be retained. Those of you who run two-barrel carbs can use a four-barrel manifold with an adapter. Homemade rams or what have you can be made as long as they fit under the stock hood.

BOOTH GOES AMERICAN

DETROIT, MICHIGAN — Long-time Chevy racer Wally Booth has completed negotiations and will definitely field an American Motors Gremlin X in '72. With emphasis on running production engines in the new Pro Stock rules, Wally and long-time partner Dick Arons will shoot for the new 6¾-pounds-per-inch break. The car will be powered by a 340-cubic-inch version of the AM 360 engine. With the combined talents of Wally and Dick, the AM entry could prove promising against the more established MoPars, Chevys and Fords. This photo, incidentally, is the best one we could find of ol' Wally.



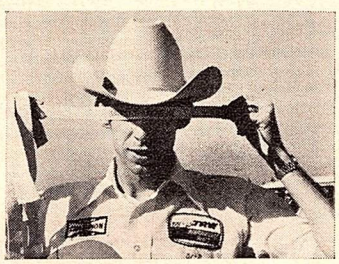
THE CHINESE PROVERB SAYS . . .

PEKING, CHINA — On February 15 the Chinese lunar year 4670, known as the Year of the Rat, began. The rat is the first in the Chinese cycle of symbolic animals, so with the rat, a new era begins. Could this possibly have a bearing on the outcome of this year's Pro Stock racing? MoPar racers, take heed.

Rumored Super Stock Records

NORTH HOLLYWOOD, CALIFORNIA — Rumor has it that initial Super Stock records for those classes that don't as yet have a record will be in the neighborhood of six-tenths lower than the existing stock records. Although reports have shown performance increases ranging from two- to nine-tenths for cars that have been changed over to the new rules with wide tires, cams and manifolds, it will be a tough row to hoe for many current combinations if this rumor holds true.

MASKED MAN



COLUMBUS, OHIO — Who's the man behind the mask? Well, he doesn't go around leaving any silver bullets, but by now he has stacked up a pot of silver. Gil Kirk, the man behind the Rod Shop racing team (and the mask) is quite a happy fellow. His squad of cars, led by Dave and Judi Boertman, Mike Fons and Bob Riffle, racked up more major event titles in '71 than any other team except Sox & Martin, whom they tied with at six NHRA wins.

STOCKER STATIC . . .

BOB HINER and **JERRY MILLER** have started construction on a Pro Stock Vega. The plan is to keep their GT-2 Camaro until they sort out the new cars. * **BILL "GRUMPY" JENKINS** has been running his '69 Camaro as a test bed for sorting out possible small-block combinations for his new Vega. At 2850 pounds, the car has turned 10.20s, using a 350-inch engine. "The Grump's" testing was detained a day when his mule suffered an engine compartment fire, but all that's taken care of, and he's back at it. It's too early to tell just what bore/stroke combination he'll be coming up with, but the 302 has showed promise. * **BOBBY WARREN** has forsaken the Chevy camp and moved over to MoPar. At this time, he hasn't worked out a running combination, but you can be sure it'll be tough. * **LEE SMITH** and **LARRY GRIFFITH** have joined forces to form Car Shop, Inc., and will be building complete race cars. The Moline, Illinois, installation has reportedly been swamped with orders for cars and components. * Speaking of **LEE SMITH,** you can expect to see a new unique combination from him later on in the year. Lee is a very innovative racer. * **FRANCIS CRIDER, of** C/Dragster fame, will be running his winning "smoky" rail in B/D for the beginning of the season, but the real news here is that he will be leaving Competition Eliminator in favor of Modified. As we understand it, he'll be running a car with fenders, so Francis joins the group of "fender flappers," and you can bet he'll be one to contend with. * The latest report on **MARV RIPES** is that he will not be building a Super Stocker for the new season. He plans to sit back and wait to see if there is a sleeper hiding out there somewhere. * **GALE PARSONS,** a well-known stocker racer, has been working with Oldsmobile on flow-testing induction systems and heads. Gale could possibly forget his Plymouth and run with Olds this year. * **ARLEN VANKE** is again building a new car. Would you believe another Duster? If so, you'd believe right. ■ ■

THE ROUNDY-ROUND CORNER

BY STEVE KELLY

Andy Granatelli Signs Richard Petty

France Resigns as NASCAR Chief

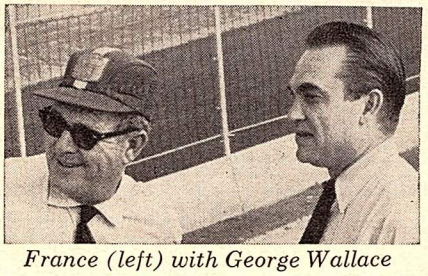
Ontario Cancels USAC Double-Header

BILL FRANCE STEPS DOWN

Daytona Beach, Florida — Bill France has resigned as president of the National Association for Stock Car Auto Racing. William C. France, his son, has been appointed the new president of NASCAR.

The 62-year-old France has served as president of NASCAR since its formation on December 14, 1947. Big Bill has taken the association from a group of little-known amateur racers to a highly professional league of racing which saw more than six million dollars in purses paid out in 1971 for the six NASCAR divisions.

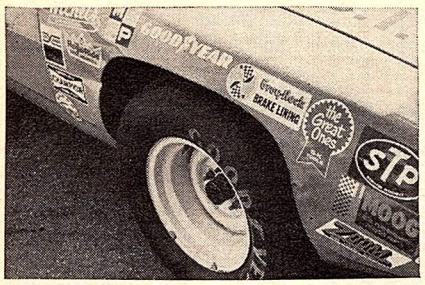
Bill France, Sr., will remain as chairman of the board and president of the International Speedway Corporation. ISC is the operating company for both Daytona International Speedway and the Alabama International Motor Speedway at Talladega, Alabama. He cited one of the reasons for his retirement is to give him more time to devote to running the two tracks. He might also like to relax a bit.



France (left) with George Wallace

Bill France, Jr., has been a NASCAR vice-president for a number of years, and it was never thought that anyone other than he would succeed his father to the top job. Other members of the France family are involved in NASCAR and ISC. Anne France, the wife of Bill, Sr., is treasurer of the International Speedway Corporation, and Jim France, the younger of the two sons, is assistant treasurer.

Goodyear Offers Money, Free Tires



Akron, Ohio — The Goodyear Tire & Rubber Company has introduced an awards program based around the 1972 Winston Cup Grand National division which could exceed $365,000.

The awards program has a contingency phase offering more than $70,000, which will be divided among the first five finishers in the 32-race schedule. Another $18,250 will be added to the Winston driver point fund and divided among the first 10 finishers. An added attraction is that the point fund money is noncontingent.

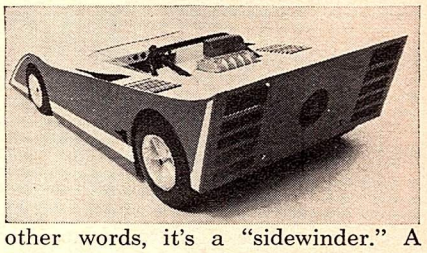
Goodyear's other program for Grand National division cars is a plan to furnish racing tires to the fastest 10 qualifiers at all Winston Cup GN events.

The outline for the free tires is that Goodyear would furnish up to 20 tires for the five fastest qualifiers, and up to 12 tires to the next five fastest qualifiers in races of 300 miles or more.

In races of 250 miles duration, Goodyear will furnish 12 tires to the five fastest qualifiers and up to eight tires to the next five fastest.

BLOWN CHEVY SIDEWINDER CAN-AM CAR

Los Angeles, California — An ingenious combination of proven designs for Can-Am race cars will soon be put to work with some engineering innovations from the drag strip. Bill Schultz and Colin Berryman will feature a transverse-mounted, 6-71 GMC supercharged, ZL-1 aluminum Chevy. In other words, it's a "sidewinder." A three-plate Borg & Beck clutch couples to a chain drive which then drives a 5-speed Hewland gearbox (transaxle). The cast magnesium oil pan serves as the main mounting point for the engine and drive train. Nearly every part within the drive train can be reached or swapped easily, since Schultz and Berryman figure a total of six minutes is all that's needed to remove it.



The car has an integrated monocoque construction with the tub (main center portion of the car) ending at the engine bulkhead in a manner similar to the M8 McLaren.

Colin Berryman and Bill Schultz have definitely found a new way to at least upset traditional Can-Am thinking, and maybe a new way to win a race or two.

NEW RULES FOR INDY 500

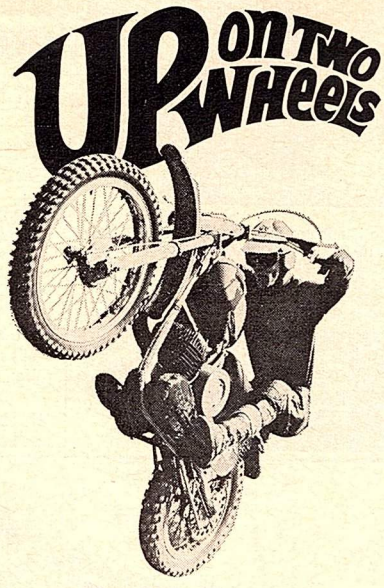
Indianapolis, Indiana — Indianapolis Motor Speedway officials have made several changes for the 500-mile race on May 27.

Drivers without previous experience in the event will have to demonstrate their ability to run speeds over 160 miles per hour. Four pit stops will be required at the '72 Indy 500, as opposed to the previously mandatory three stops. Pit crew members must wear fire-resistant clothing. Some engine sizes have been increased for this year's 500, although the turbo Ford and Offy engines will retain their maximum limit of 161.703 cubic inches.

LAST LAP . . .

A. J. Foyt will drive the **Wood Brothers' Mercury** in all FIA International open (open to all FIA graded drivers such as A.J.) NASCAR events this year. □ **Richard Petty** will run in all the **Winston Cup** events this year. Even though Chrysler wont be backing him, Petty figures on having a high-buck sponsor by Daytona time. □ While Richard Petty became a millionaire race driver in 1971, due to his career earnings of over a million dollars, **Al Unser topped Petty's '71 earnings.** Unser won **$356,884.** Besides topping NASCAR Richard, Al bested PGA Champ Jack Nicklaus, and might be the highest season-long moneymaker of any professional athlete. □ **USAC's** executive director, **Bill Smythe,** suffered a severe heart attack last December but has now been removed from the critical list. □ As of this writing, **STP** hasn't come up with a driving team for their **'72 USAC** effort, but they're building cars. At least one of them will have a **dual-turbocharged DOHC Ford** engine. □ Later this year, STP will revive their **turbine cars for** runs at the **Bonneville salt flats.** The cars will retain their Indy 500 sheet metal, but will be fitted with a canopy over the driver's compartment. Should be able to run over 200 mph during the warm-up pass. The **Motor Racing Network** will originate **14 major NASCAR** races this year. The broadcasts will be cleared for nearly every major metropolitan station in the U.S. □ Los Angeles' **KLAC/570** has introduced a twice-weekly (five-minute) auto racing program. One is Friday evening, the other on Sunday evening. □ **Roy Woods' American Racing Associates, Inc.,** has purchased a Formula A car from Australia's Frank Matich. Most U.S. teams get their "A" cars from Europe, but this **Repco-Matich** will arrive complete and ready to race. □ **Dick Hutcherson** will head up the **Penske/Donohue NASCAR** Grand National crew. Hutch and Eddie Pagan have a new shop in Charlotte, and they say that if one more '69 model GN car came in for '71 sheet metal, it wouldn't leave for over a month. □ **Ontario Motor Speedway** has abandoned their **"Twin 200"** race scheduled for April 9. The USAC sanctioned event was to have had championship cars on the oval and stock cars on the road course. Not enough good cars available is one reason for cancelling. Another reason might be the **Formula I** race on the same day at **Riverside International Raceway,** about 20 miles from OMS. □ **Richard Petty** and **Andy Granatelli** have joined forces. STP is now the owner of the Petty Enterprises racing table for NASCAR. Petty's organization will manage the cars, and Richard Petty will drive the lead car. After the first NASCAR GN race at Riverside, Petty's car will be painted STP Red and Petty Blue. ■■

UP ON TWO WHEELS

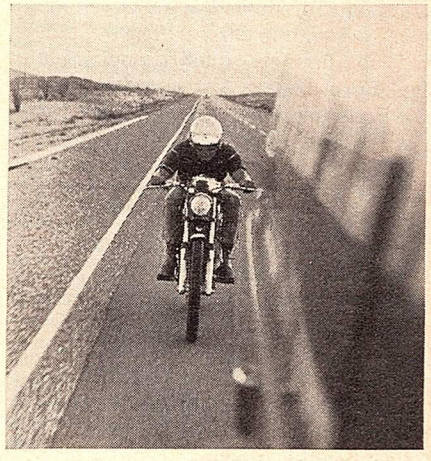


by Bob Greene, Motorcycle Editor

Technically speaking, where do you think motorcycling is headed? Frankly, it's become a puzzle lately, one that seems to be getting more complicated, and more difficult to predict, by the day. Almost as if our days were numbered — and we knew it — we seem to be exploding in all directions of research and development at once, with one obvious exception which will certainly turn up before this column closes.

It's a wonderful and unprecedented experience, this being deluged with mechanical innovations, dazzled and torn between opposite poles of engineering expertise, almost to the point of being bugged by decisions. Rather like having too many girl friends. More practically speaking, it is a sure sign of a vigorous and healthy industry, unlike the automotive scene where manufacturers huddle ever closer together in styling and features, to the point where it becomes difficult to distinguish between brands from more than a few feet away. Worse yet when you lift the hood. Whereas with the car folks, a V8 is a V8 is a V8, the bike builders are growing bolder and more divergent with each new model, ever searching, running the gamut from port-timed two-strokes to four-valve four-strokes.

Putting induction, carburetion and ignition aside, just a survey of crank layouts alone is enough to drive the enthusiast up the wall in amazement: the single, the V-twin, simultaneous parallel twin, alternate parallel twin, opposed twin, the triple, and now the four. But what a delightful dilemma, to have the option of dialing-in just the exactly right engine characteristics for the job.



Dixie Cycle Newspaper Editor Don Woods does the impossible, rides his H-D 125 coast to coast in 89 hours, 25 minutes.

It's about time. Champion Spark Plug Company received the Continental Casualty Company Safety Award for outstanding contribution to safety in motorcycle racing as a result of their new series of plugs for two-cycle engines. Fewer seizures mean fewer falls. Champion test rider carries test instrumentation and tape recorder.

Only a couple of years ago the multis came in vogue, and we thought we had really arrived — and we had. But now, with Suzuki and Yamaha both on a water-cooled kick, still another ingredient seasons the mix, with Yamaha adding a pinch more spice with their introduction of fuel injection on their forthcoming water-cooled two-stroke four-banger. As any Honda dealer will confirm with a broad smile, we bought the multi concept, but will America go for the radiator bit, with its attendant pump and hoses? We'll soon know.

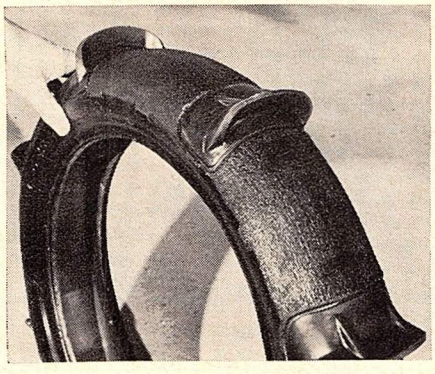
Paradoxically, while sophisticated four-strokes of increasing displacement rule the streets, on the outskirts of town, in the off-road, the simplest of two-strokes holds an even tighter grip. The strongest off-roader of all, on a sheer performance level, is still a port-timed two-stroke single, uncontested by any four-stroke — or even reed valve or rotary valve two-stroke, for that matter. Why? The price? Not when Honda can turn out an exotic overhead cam four for the same loot as a Husky or Maico. Then is it the weight? I don't believe it,

(Continued on following page)

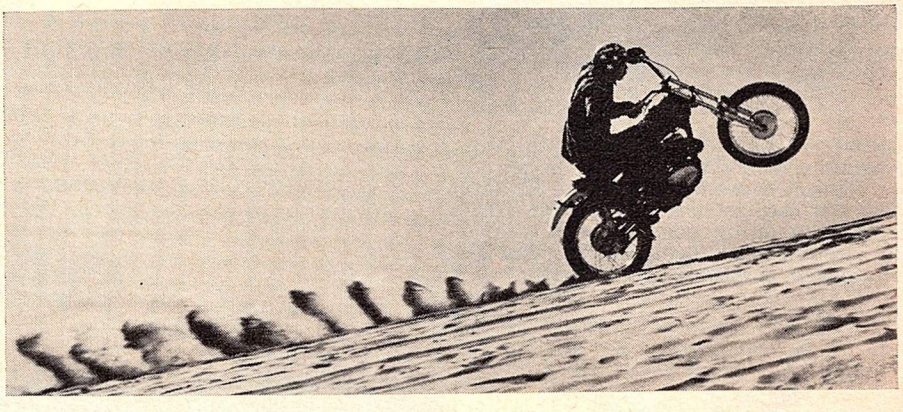
ABOVE — Everybody's pal, Bob Bates, the founder of Bates Accessories, has left us as a result of a car accident. At 58 Bob was still hard to beat at the drags. BELOW — Stand by, you four fans, Yamaha's water-cooled, fuel-injected four-banger will soon contest the superbikes.

UP ON TWO WHEELS

not when a private builder can get a custom-framed 650 Triumph down to a fighting trim of under 280 pounds. No, the sad part would seem that industry — the four-stroke industry — appears to have tossed in the towel in the off-road arena. Only Honda, Ducati and BSA, at 350, 450 and 500cc respectively, stand and fight, handicapped by a self-imposed conviction that the American public has a hang-up against anything larger than a 500. It reminds me of the seemingly impenetrable wall the two-stroke engineers placed before themselves only a few years back when they flatly stated that any two-stroke single larger than 250cc would be impractical in respect to efficiency, cooling and vibration. And they really believed it, until Suzuki and Kawasaki broke the barrier. With modern technology and metallurgy, perhaps the day has come and gone when a 600 four-stroke off-road single is necessary to put an end to two-stroke domination of the off-road scene, but we have seen no evidence of it yet. And since a 600 need be no heavier than a 500, if it takes a poke and a stroke to make a four-stroke competitive, I say it's high time we got on with it. If Giulio Carcano could build a road race Moto Guzzi V8 weighing 319 pounds in 1955, we shouldn't have a serious problem with a 250-pound big single today. Maybe the American hot rodder did stub his toe on the V8 — I've seen better sixes — but he at least didn't have any qualms about dragging out the boring bar when Detroit failed to keep up. Corny as it may sound, there's still "no substitute for cubic inches" — after engineers have done their thing. ■■

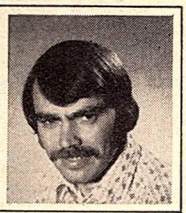


BELOW — Unique new paddle tire gives bikes enough traction to conquer steep sand-dune hills for the first time. Sand erupts in uniform chop as Yamaha 360 Enduro gets enough bite to even do a wheelie. LEFT — To make super-traction sand tire, a regular tire is shaved and eight scooplike padddles are vulcanized onto the smooth casing by Stuart's Custom Bikes in Calimesa, California. Tire cost runs between $40 and $50.



LEFT — Back in the 'thirties and 'forties, Harley big-twin riders ran what they called "bob jobs." Oldster Dick Hutchins of Los Angeles Harley-Davidson still turns them out on request. Slick, huh? And the resulting power-to-weight ratio is really something else.

JOHN DIANNA'S Shop Talk



Selected letters to Shop Talk will be answered only in this monthly column. DO NOT send stamped, self-addressed envelopes with your question. It is impossible to send out personal replies.

DOUBLE-BARREL KILLER

We run an unusual combination. It's a 400 Pontiac with a two-barrel carb. We run the car in AHRA competition in their Formula 3 Stock class. Currently, we are using Holley's 500-cfm two-barrel, but we would like to know if there is a larger, or possibly better, two-barrel that we could try. We are going in the low twelves now but are about at our limit.

Randy and Wayne Jackson
Kansas City, Missouri

We have heard of some four-barrel carbs being cut in half and used as a single two-barrel, and as far as AHRA is concerned, it's perfectly legal. The plan is to use a Holley 4500 and completely disassemble the carb. Mark it off and cut it in half, separating the primaries and secondaries. Because the 4500 utilizes separate metering systems for the primaries and secondaries, there are no air-bleeds or vent passages that require plugging. The next step is to machine an adapter out of aluminum to mount the carb to your existing manifold. Because of the large-diameter throttle bores, the adapter will most likely require a taper approach to get a smooth transition into the manifold runners. This combo will increase the cfm into the chambers, and you should see a power increase.

SHARP OBSERVER

While attending a match race featuring four leading Pro Stockers, I noticed that one of them had a viscous drive mounted on the crank pulley. I take it this is to cut off the water pump at high rpm. Is there really any benefit in this setup, and will a guy actually realize a performance gain?

T. L. Dobbin
Mansfield, Ohio

As we understand it, Chrysler tried this setup and did realize a slight increase in peak horsepower on the dyno; but it's questionable as to any actual gains in strip performance. Some racers are still using the setup; however, others have had problems with the fan drive failing and the engine overheating. If your engine runs cool enough, it could be worth a try; but if you're currently experiencing high engine temperature problems, I'd pass for now. Let's face it, these types of mods aren't thought up to ballpark a combination; they merely offer a guy that racer's edge. ■■

PLAYIN' THE HARMONICA

What's the main purpose of a valve spring umbrella except to add weight to the valve train?

Guy Anderson
Bristol, Tennessee

The main purpose of a valve spring umbrella is to minimize spring surge. Actually, it's a fixed-position metal dampener that covers a portion of the o.d. of the coil, and as the valve opens and closes, this causes the dampener to rub against the spring. This rubbing causes friction, which creates a damping effect on the spring, much the same as an inner-spring dampener does. Inner-spring dampeners are considered more efficient and they also have the ability to close the valve should valve-spring failure occur.

HEADS UP

I own a '65 Dodge that's equipped with a two-barrel-type 318 engine. I would like to build up the engine and would like to know if it's possible to use the late-model 340 heads? If so, what modifications are necessary?

Harry Shelden
Muncie, Indiana

340 heads are a good bet for your 318, and you have a choice of two types. The first, and probably the least expensive, are the standard 340 heads (parts No. 2531902), which you should be able to locate in used form. A second choice, and probably the better one, is the late-model 340 Six

Pak version originaly seen on the T/A Challengers and AAR 'Cudas. These heads (parts No. 3577050) require a different valve train, as the intake pushrods are slanted to allow additional room for the larger intake runners. Whichever way you decide to go, use the 2863493 340 head gaskets to seal the cylinders and water passages. It's also recommended that the cylinder bores be notched to allow a minimum of .060-inch valve-to-cylinder-wall clearance. With the heads installed, you can use any 340 manifold that best suits your particular application.

WITH THIS RING . . .

Just how important is the top compression ring positioning? I've heard of guys moving the top ring closer to the top of the piston. In your opinion, is this a good practice?

Wayne Caldwell
Tifton, Georgia

Honestly, Wayne, I think it's a matter of a total combination. There have been guys who have moved the top ring and lost power (or at least haven't realized a power gain), and there have been others who found power increases. It's all really a matter of (1) fitting the rings to the cylinder walls, (2) the hone and, of course, (3) the type of ring selected. Ralph Truppi has had very good success using a stainless steel top compression ring machined close to the piston top. Remember that ring groove location is important to different types of rings. A pressure-backed ring should be placed near the top of the piston, as it relies on combustion pressures to seal it against the cylinder walls. The Seal Power head land ring is of course fitted very close to the top of the piston and also has additional material machined from the piston top to allow more combustion pressure behind the ring. On the other hand, a cast Moly ductile ring can't live if placed high on a piston, as it needs to be sheltered from the heat, not exposed to it. The most successful combination when placing the top ring high on the piston has been the .043-inch or the .046-inch chrome-faced stainless steel rings available from many of the leading piston manufacturers.

(Continued on following page)

SPEED SHOP DIRECTORY

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Shop Talk
CONTINUED

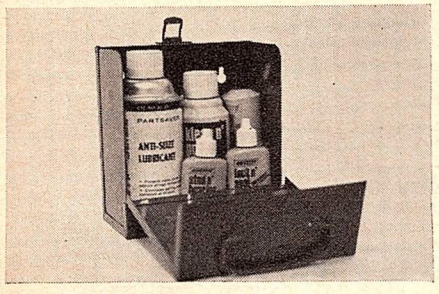
READER HELPS READER

We received this letter from one of our readers who owns a '72 Chevy Nova. Due to lack of space, and not wanting to cut up his dash, Dennis Stelling fabricated a gauge-mounting bracket that fits snugly in the instrument panel. After measuring the dash panel (left-hand side of steering column), Dennis found that there is just enough room for three gauges. The gauge panel box was made out of 1/8-inch soft wood cut on an angle to match the offset angle of the dash and tilt the gauges toward the driver. The box has no back and is secured to the dash with two screws. The front plate is .040-inch aluminum. The gauges were installed on the cover and all wiring run through the dash and the box and hooked to the gauges. With the gauges firmly installed and connected, the aluminum plate with gauges can be positioned and secured with four screws. Dennis is quite proud of his handiwork and says that many people feel the installation looks like a factory job.

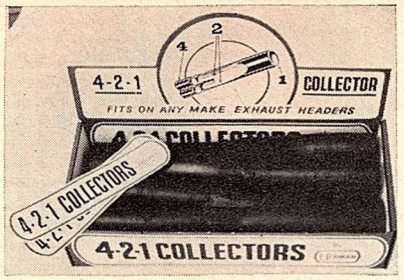
WHAT'S HOT

HURST PERFORMANCE TEAM
This album is an interview between George Hurst and Don Garlits discussing the purpose and intent of the Hurst Performance Team and how it can be of value to members, manufacturers and associations, in all facets of auto sports. Record is available in 45 rpm for $1 (free with membership) and 33⅓ or cassette for $2 ($1 with membership). Contact the Hurst Performance Team, Dept. HR, The Tower, Orange County International Raceway, E. Irvine, California 92650.

BELL STAR SHIELDS
Helmet House Ltd. is offering high-quality, low-cost flip shields for the Bell Star. They are made from fully approved, high-grade plastic stock and come in six popular shades. Available with or without snaps for visors. Prices range from $1.50 to $3 from the Helmet House Ltd., Dept. HR, 12010 W. Pico Blvd., Los Angeles, California 90064.

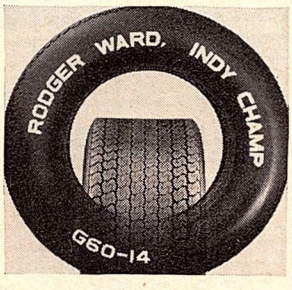


SERVICE AND REPAIR
Kit 0142 from Loctite contains the maintenance aids for which Loctite is famous. Lock N' Seal keeps nuts, screws and lugs tight. Stud N' Bearing Mount prevents spinout of bearings and bushings. Fit-All gasket compound takes the place of cut gaskets. Klean N' Prime cleans surfaces to be sealed, assuring top strength. Anti-Seize Compound is a heavy-duty lubricant that protects parts. Kit comes in sturdy, easy-to-carry metal case. A must for the workshop from equipment dealers, auto parts and hardware counters.



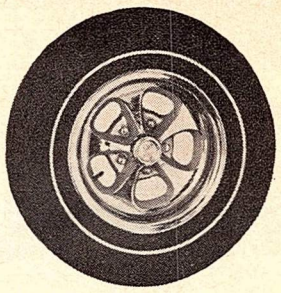
4-2-1 CONVERSION
Hedman Hedders are offering 4-2-1 conversion kits adaptable to any Hedders system regardless of make. Collectors are reportedly giving racers a tenth and 2 mph in the quarter-mile over their conventional collector setups. Send 25¢ for information and decals to Hedman Manufacturing, Dept. HR, 4630 Leahy St., Culver City, California 90230.

WHEEL COVER
Here is a steering wheel cover that provides a sure grip at all times. Supple, expandable vinyl snaps on in seconds, cleans easily and gives greater steering control. Available in black, brown or red and priced at $3.98. Contact Stadri Products Co., Dept. HR, 147-47 Sixth Ave., Whitestone, L.I., New York.

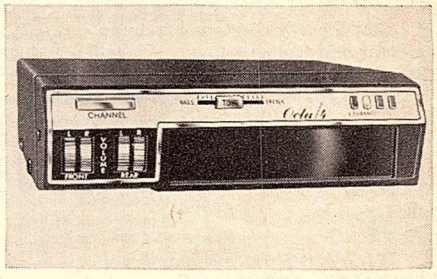


SHARP RUBBER
Rodger Ward, Indy champ, is now marketing the new Rodger Ward Indy Champ performance tire in a nylon-corded reversible raised white- and raised black-lettered 60 series tire. The hydrostatic design of the tread makes the tire a superior performer and virtually eliminates hydroplaning on wet roads. See your local tire dealer.

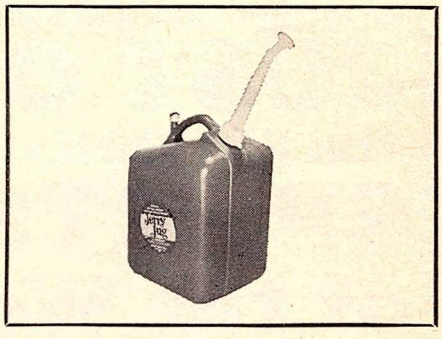
BUG TUGGER
Bug Tugger, the tough little towbar, is designed for towing the model 100 series VW, bolts to bumper and torsion bar. Chrome moly front brackets act as strong bumper guards. Bug Tugger folds upright to self-store. Price is $52.95 from Pilot, Inc., Dept. HR, P.O. Box 40, Battle Creek, Michigan.



THE ROGUE
The Rogue, available in 6-, 7- and 8½-inch rim widths, is the first one-piece chrome-plated wheel on the market. Combines a lightweight performance metal with the beauty of pure chrome plating. Engineered with special-machined back lip accepting conventional clamp-on wheel weights. Approved by NHRA, AHRA, IHRA and SEMA. Contact Keystone Processing & Engineering Co., Dept. HR, 1333 S. Bon View Ave., Ontario, California.



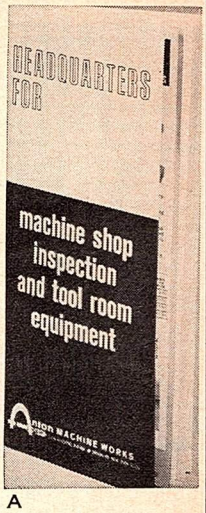
SOUND IN THE ROUND
The Octa-4 from Boman is an incomparable 8-track quadrosonic car player, the smallest in today's market, producing a new audio dimension for the music lover. Music comes from speakers with four individual volume controls, slide tone control and indicator lights. See this at your local retail store.



JERRY JUGS
Jerry Jugs by Dillon-Beck Mfg., the perfect containers for gasoline, come in vented, heavy-wall, red plastic. Jugs don't rust, break or corrode. Come complete with leakproof pouring spout with internal filter. Available in 1-, 2½- or 5-gallon ($5.85) sizes at most marine and automotive supply stores.

RUSFRE
Rusfre will give absolute protection from corrosive effects of salt air, salt-covered streets, rain and snow. Comes in 4-can kit with complete instructions. Cans are aerosol for easier use and better penetration. Kit is $15.95 from Rusfre, 3B Products Co., Dept. HR, Box 1501, Pittsburgh, Pa. 15230.

CATALOG NEWS



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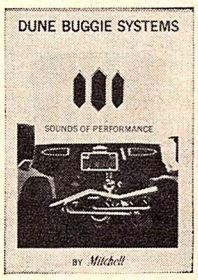

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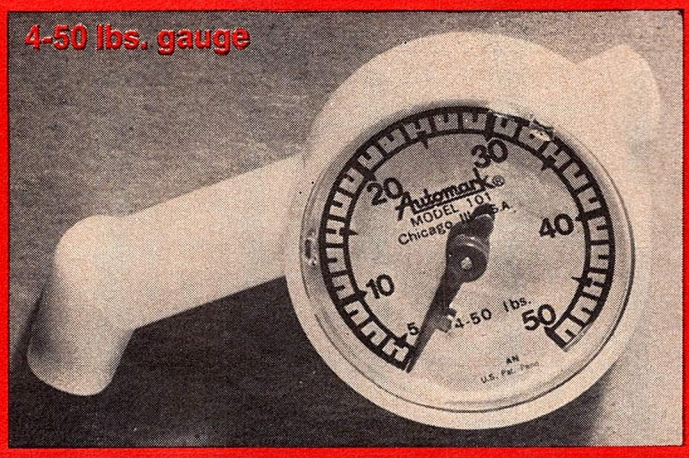
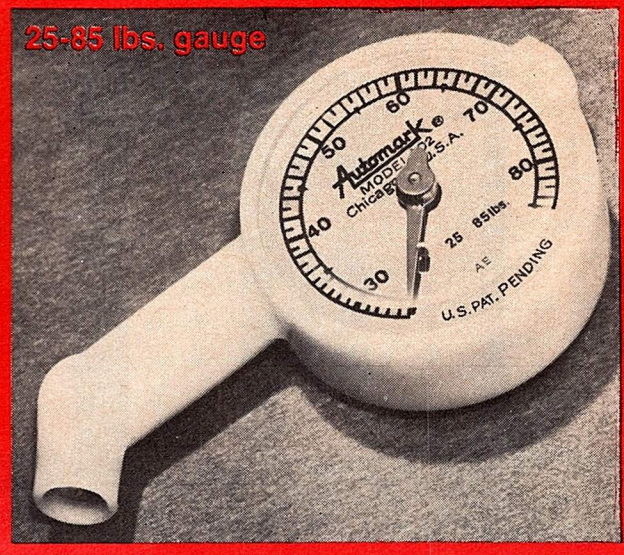
A
ANTON MACHINE WORKS CATALOG contains latest data on the full Anton line of machine shop inspection and tool room equipment. Included are parallels, V-blocks, workholders, diamond holders, magnetic blocks, auxiliary plates, etc. Contact Anton Machine Works, Dept. HR, 1226 Flushing Avenue, Brooklyn, New York 11237.

B
1972 WEBER CATALOG of clutches and flywheels gives special coverage to new Datsun flywheel/clutch assembly and a similar unit for VWs and Corvairs. Also covered are special flywheels and roller clutches for racing automatics. For catalog, installation sheet and decals, send $1 to Weber Speed Equipment, Dept. HR, 310 S. Center St., Santa Ana, California 92703.

C
DUNE BUGGIE SYSTEMS from Mitchell is a complete guide for the dune buggy enthusiast, whether weekender or racer. Catalog contains descriptions, numbers and specs for VW and Corvair exhaust systems. Only 50¢ from Mitchell Mfg. Co., Dept. HR, 146 S. Palm Avenue, P.O. Box 247, Alhambra, California 91802.

D
DICK CEPEK'S CATALOG is free again! And it contains unique camping accessories, four-wheel-drive, dune buggies, off-road racing or camper tires. The 68-page, hard-cover catalog is the only complete source of tire and wheel load and inflation information. Write to Dick Cepek, Inc., Dept. HR, 9201 California Ave., South Gate, California 90280.





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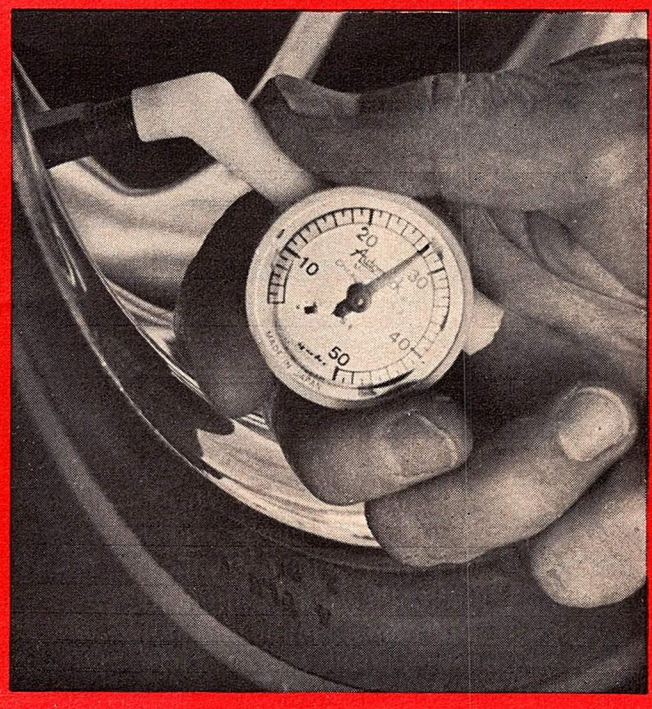

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DETROIT

It's on to the automotive capital of the world for the third edition of street rodding's giant get-together: The Street Rod Nationals move to Detroit, Michigan.

Torque about fun! This one'll spin your mags off! A Streetkhana, go-whoa competition, rod runs, dances, picnics — all the fun features of the Nats, but loaded with extras in '72. Special auto-assembly plant tours, new-design cross-country runs, a bonanza of prizes and awards (try the new Varmint Award for starters), will all add to the overall fun and excitement of **the** Nats. Four full days of Street-is-Neat happenings!

Enter early. More than 1200 cars were entered in '71, and authorities agree there'll be at least 1800 in '72! Got a pre-1948 machine? Send in your request for an entry form pronto — be a part of the biggest, mind-blowing gathering of pre-'48 iron ever assembled anyplace in the world.

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Send in your name and address immediately for an entry form and enjoy the fun side of street rodding at its best: **the** Nationals.
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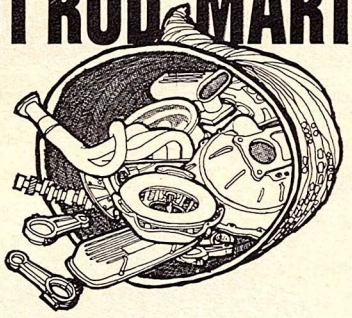
HOT ROD MAGAZINE STREET ROD NATIONALS • JULY 13, 14, 15 and 16, 1972 • MICHIGAN STATE FAIRGROUNDS • DETROIT, MICHIGAN

HOT ROD MART

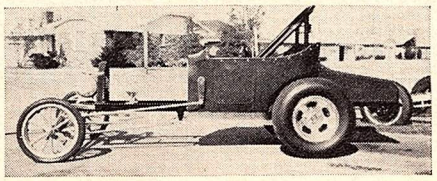


HOT ROD MART Requirements: **25-word limit per ad,** not including name and address. We reserve right to edit copy or refuse ads. While not responsible for accuracy of description, we will reject misleading statements. No ads from commercial firms. Only one car may be listed in any one ad; this limitation not to apply to parts or equipment, however. Please state preference for street or competition listing. $10 per ad must accompany each insertion. When photo is included, the rate is increased to $15 per insertion. **Due to normal publication schedule, allow at least two months from time ad is received until it is printed.**

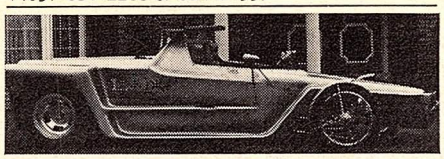
STREET MACHINES

SELL — 1950 Austin 2-door body & chassis, coil-over shocks, tube axle, 'glass nose & deck, aluminum floor, Naugahyde, plexiglass, rollbar, harness, 4.56 posi, more. $795. Melvin Dutkiewicz, P.O. Box 124, Plymouth, Conn. 06782, (203) 283-8080.

SELL — '67 Datsun V8-powered pickup featured in Feb. issue. $1895. Phone (805) 482-1707 or 482-8076.

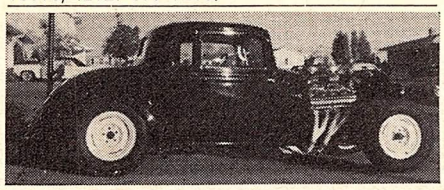


SELL — 1923 'glass 'T', 327 Chevy, balanced 4-speed and turbo, mags, M&H, Sun, beautiful workmanship. $1500 cash. Larry R. Benson, 3707 S. Blackwelder, Oklahoma City, Okla. 73119, (405) 631-2268 or 634-3455.



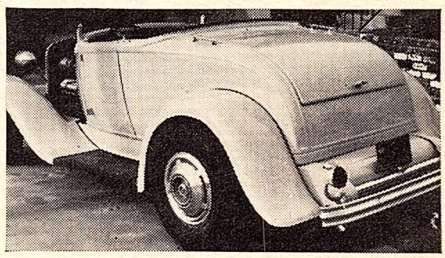
SELL — 1972 midship Indianapolis-type street roadster, $18,000 invested, gorgeous lemon interior and exterior, completely licensed, street driveable, tremendous potential for automotive advertising. William M. Block, 4709 83rd Pl., Kenosha, Wisc. 53140, (414) 694-3377.

SELL — 1969 Chevrolet Nova with stock 396 L-78 engine, close-ratio transmission, headers, mags, power steering, power brakes, excellent interior. 41,000 miles. $1950. Cook Neilson, Cycle Magazine, 1 Park Avenue, New York, New York 10016, (212) 679-7200.



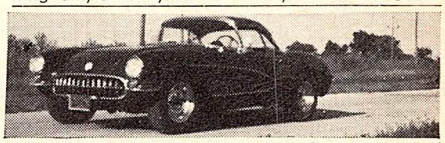
SELL — 1932 5-window channeled Plymouth coupe, full-race Hemi Chrysler, drag, show or street rod. Price $1800. Tom Curtis, 1970 25th Ave., Marion, Iowa 52302.

SELL — Mind-bender project, Daihatsu 3-wheel pickup truck plus Fiat 600 engine and drive, $150. John Kelly, Mission Viejo, California, (714) 837-3683.

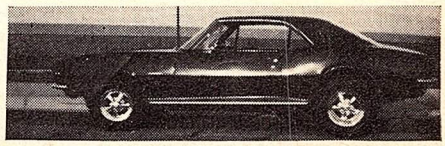


SELL — Ford roadster, Olds eng., Hydro, Pont. rear w/coils. S-W instruments, yellow lac. paint. Cherry top bows. Needs upholstery. $1500 or best cash offer. Jim Welles 6776 Hawarden Dr., Riverside, California 92506, (714) 682-1486.

SELL — 1940 Ford DeLuxe coupe, B-W four-speed, Chevy rear, excellent-running Chevy 265, new paint, interior body perfect, two mags, electric fuel pump, must sell. $1600. Gary R. Cunningham, Sharon, Conn. 06069, (203) 364-5004.



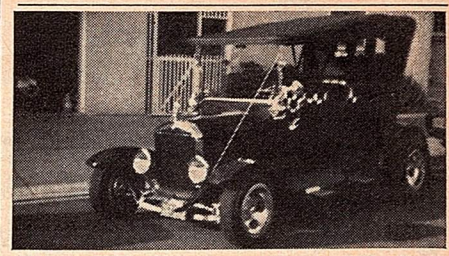
SELL — Stock 1957 Corvette, 283-hp 283, fuel injection, 4-speed, 4.11 posi, both tops, interior-exterior Venetian red, completely restored throughout, excellent condition. $1950. Tim Agner, 511 E. Hickory St., Chatsworth, Illinois 60921, (815) 635-3520.



SELL — 1967 Camaro, 360-hp 327, Tarantula, Hurst, Muncie M-22, Holley, Hedman, Schiefer, M&H, Zoom 5.38 posi, ACCEL, gauges, Mr. Gasket, Cragars, clean, Rallye Red. $2475 or make offer. Jon Lewis, 536 S. 9th, Salina, Kansas 67401, (913) 823-8109.

(Continued on following page)

HOT ROD MART



SELL — 1925 T-touring, all-steel 283 Chevy Power Glide, chrome front & rear end, polished Ansens, Firestone Indys. Camaro Orange, black button tuft. Street & show. $4000. Dave Hayward, 2702 Fairmount Ave., San Diego, California 92105, (714) 282-3669.

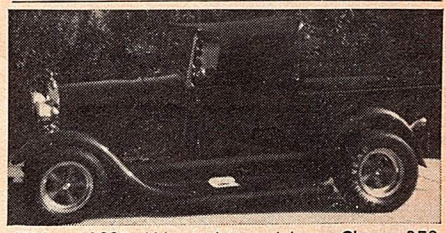
SELL — 1939 Chevy Master Deluxe coupe, black, 327 'Vette, chrome crank, T-10, Hurst, Fenton, Holley, Offenhauser, new chrome, red & black Naugahyde, buckets, carpet, Sun, street-legal. $1195. G.L. Blanton, Box 891, Idalou, Texas, (806) 892-2878.

SELL — 1960 Studebaker Hawk, 45,000 original miles, 5000 miles on rebuilt engine, exceptionally good body, 3-speed w/overdrive, orig. tinted windows, sell or trade. All inquiries answered. Dennis J. Patrick, S38 W27205 Genesee Rd., Waukesha, Wisc. 53186, (414) 547-1180.

SELL — 1957 Nomad, p.s., p.b., 'glide, air, good condition, driven daily. Easily restored to original. $1400 or trade for 'Vette, early Ford or guns. Ross Fields, 3819 Thaxton S.E., Albuquerque, N.M. 87108, (505) 255-9114.

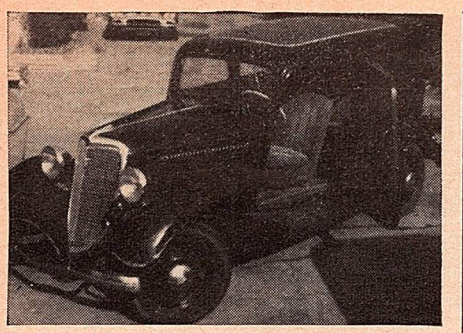
SELL — '70½ Z/28, 4-speed, 4.88 Zoom, Lakewood, S-W, Hurst shocks, shifter & Line-Loc, Ansen, Weber, Sun, Doug's, Sig Erson, only 1000 miles. $3000. Tom Earlbeck, 8204 Pulaski Highway, Baltimore, Maryland 21237, (301) 687-7400.

SELL — Immaculate show & street '37 Ford Sed. Del., Nats. '70, '71 winner, numerous sweepstakes, R&C cover car April '70, super dependable, Chevy V8, air. Asking $6000. Orv Elgie, Downey, California, day (213) 868-0911, ext. 256; night (213) 864-5806.

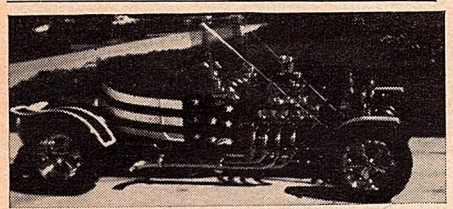


SELL — 1928 'A' roadster pickup, Chevy 350, Rochester inj., Muncie, all-steel body, chrome front end, etc. Schiefer, Moon, Sun. $2800. Buck Long, 2609 Mulberry, Riverside, California, (714) 686-4856.

SELL — 1959 Edsel Ranger 2-dr. sedan, V8, automatic, red over white, stored 3 years, needs maintenance before driving, photo and particulars on request. $385. T.J. Heflin, Altoona Rt. 3, Alabama 35952.



SELL — 1934 2-dr. sedan, deluxe model, '34 reworked flathead, nothing else touched, all original. Kilometer speedo, luggage rack, original 1934 bill of sale. $2500 or best offer. Madeleine Johnson, 18116 Erwin St., Reseda, California 91335, (213) 345-4292.

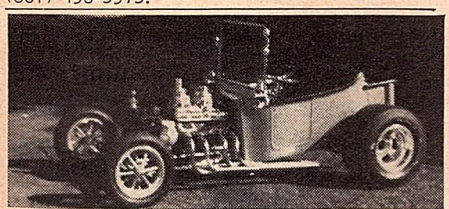


SELL — "Captain America," red, white & blue '23 glass body, black upholstery, full fenders, Andy's frame, 289 Ford, tunnel-ram, 780 Holley, 3.70 Chevy, street-driven, all chrome. $4000. Mark Smith, 2500 Seymour Ave., Knoxville, Tennessee.

SELL — 1937 Ford sedan, 289 Ford engine, Edelbrock hi-riser, S-W gauges, body and interior excellent. 80% complete. Must sell; moving to Australia. $550 firm. Ken Markhard, 18 AMS, Box 16305, APO San Francisco 96239.

SELL — '65 Corvair, rear-mounted '68 Olds Toronado 455, turbo. Tube subframe, headers, immaculate gold body. Super rear-mounted cooling system for street. Extremely strong. $1250. Ron Musgrave, 1863 Andros, St. Louis, Mo. 63136, (314) 869-3359.

SELL — Collector's item, 1968 Shelby GT500 convert., 428 Cobra LeMans, automatic, new top, Cragars, stereo tape, Hookers, p.s., p.b., air, 56,000 miles, immaculate, will deliver. $4500. Michael Hess, Box 592, Plymouth, Utah 84330, (801) 458-3573.



SELL — 1923 glass roadster, completed 6-71, show or street, tube frame, torsion bar suspension front and rear, disc brakes, Buick, Muncie, 4.30 Zoom. Much chrome. $2700. Grant Pavolka, P.O. Box 5096, Tacoma, Washington, (206) 475-7974.

SELL — '23 'T' Candy Purple w/flake flames, black button-tuft interior and top, 401 Buick 2-4s, 3-speed, chrome Olds rear end, Sweepstakes winner, street-driven, licensed. $2600. Robert Livingston, 3561 Gaviota Ave., Long Beach, California 90807, (213) 426-0635.

SELL — 1966 Chevrolet Bel-Air, 425-hp 427, Edelbrock, Holley, headers, 4-speed, 4.89 posi, AM/FM. $1300. Randy Kloefkorn, Caldwell, Kansas 67022, (316) 845-6694.

(Continued on following page)

NEXT MONTH

Auto Shop Series:

BEARINGS AND LUBRICATION

HOT ROD MART

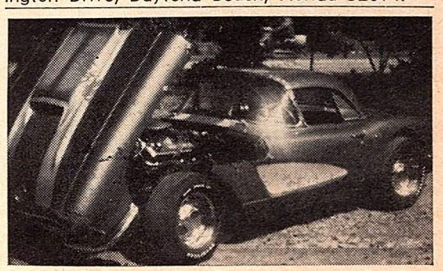
SELL — 1955 210 2-dr. hardtop, original 265 power pack, auto, 36,000 actual miles, second owner, many new parts and extra parts, factory color scheme, $1500 or ? John Joseph Kelly, 17 Crizer Ave., White Sulphur Springs, West Virginia 24986, (304) 536-1504.

SELL — 1961 Nash Metropolitan with 21,000 miles, 3-speed, radio, heater, original interior, two-tone yellow and white, driven daily. $950 or offer. Gary L. Hartzell, 5520 S. Windermere, Littleton, Colorado 80120, (303) 794-6897.

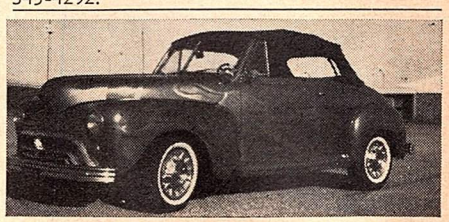
WANTED — 1929-1936 Chevy sedan delivery, no junk. Reasonably priced machines only. Pat Quealy, 2017-29th Ave., S. Minneapolis, Minn. 55406.

SELL — 1955 T-bird, new 292, a.t., power seat, p.s., p.w., body & upholstery good, soft top. $1750. James Rice, Box 22-C, Bishopville, Md. 21813, (301) 352-5718.

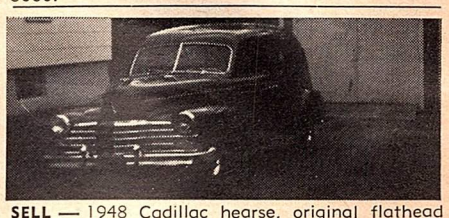
SELL — 1960 Corvette, 302, 12.5 TRW, Edelbrock TM1, 850 Holley, Flamethrower, close-ratio Muncie with Hurst, 4.56 posi, new interior, paint, mags and tires. $2700. Tom MacLeran, 248 Lexington Drive, Daytona Beach, Florida 32014.



SELL — Show/go '59 Corvette, new 454 Rat, 650-hp, blueprinted. B&M turbohydro, 4.88 Olds rear, tilt front, custom interior, paint, striping, much more. $4000 or best. Jerry D. Johnson, 18116 Erwin St., Reseda, California 91335, (213) 345-4292.



SELL — 1948 Ford custom convertible, mid-fifties styling, completely redone 1971, bronze with gold flames. 394 Olds, Merc drivetrain, different, dependable and driven! $895. Viv Kane, 117 Baltimore St., Bay Shore, N.Y. 11706, (516) 665-8060.

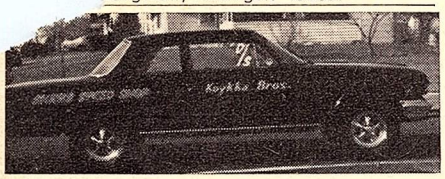


SELL — 1948 Cadillac hearse, original flathead V8, 39,000 original miles, automatic, interior excellent. All chrome complete. Now in storage. Has been paraded. $1500 or best offer. Ted Corbett, 15 Katahain St., Bangor, Me. 04401, (207) 942-2018.

SELL — 1957 Nomad, bronze and black, very clean inside and out. 350-hp 300 with Holley and headers, 3-speed with Hurst, air-conditioned. $1500. R. Kilian, 3217 Ave. S, Galveston, Texas 77550, (713) 762-7394.

, 454-450, Turbo- ...nerican mags, trick ... or trade for '68 or ...ves, 826 Chestnut St., ...53-5290.

...d, full-fendered, five-win- ...eet rod only. Will consider ...roadster, or a supercharged ...es returned. Ben Wahl III, 1055 ...Saginaw, Michigan 48603.



SELL — 1962 Biscayne, 409, new carburetors, Isky, Forgedtrue, CSC, Schiefer, Hooker, Lakewood, Hurst, 4.88, much more. Perfect condition, street or strip. $2500 invested, asking $1800. Phil Koykka, 69 W. Browning Rd., Bellmawr, N.J. 08030, (609) 931-7270.

SELL — Anglia, all-fiberglass flip-top car, half-completed. Chopped top, both doors open for legal gas, on boxed frame, Olds rear end, chromoly front, Goodyears. $600. Bill Roy, 1022 Donley Dr., Euless, Texas 76039, (817) 267-1948.

SELL — 1930 Model A Ford closed-cab pickup. Very good condition, completely stock except for wheels. Extra bed, motor and trans. All for $1575. Tom Bridges, Hector, Ark. 72843, (501) 284-4182.

SELL — 1970 RS/SS 454 Camaro. Professionally built, 450+ hp, Hurst 4-sp., performance and comfort extras galore. $7000 invested, completed summer '71, 3000 street miles, now stored. $4800. Mike Chiteman, 824 E. 10th St., Erie, Pennsylvania 16503, (814) 455-2152.

SELL — 1932 Ford Victoria, 300-hp 327 Chevy, automatic, S-W, front disc brakes, narrowed Chevy rear end, dependable, comfortable. $4000. Bill Hilderbrand, Mableton, Ga. 30059, (404) 948-0474.

SELL — 1962 Corvette, Firemist Green, chrome wheels, 4-speed Muncie, Hurst, Sun tach, 8-track, rebuilt 327, Duntov cam, 3-2s, complete but not yet running. Best offer over $1200. Dale W. Schlicher, 156 Berger St., Emmaus, Pa. 18049.

WANTED — California 1932 Ford 2-dr. sedan, chopped top, full fender, black interior, late V8, must be show condition, price no object for right car. Mrs. Delphia, Pacific Grove, California, (408) 375-7973 after 7 p.m.

ENGINES & PARTS

SELL — '32 Ford 5-window coupe parts: Fenders (rr, lf), gas tank, hood, radiator shell, rail covers, 3 bumpers and brackets, visors, headlights, dashboard, $100. John Vincent, 2000 Rustic Cyn. Rd., Pac. Pal., California 90272, (213) 454-4311.

SELL — Stock interior for '36 Ford Coach covered in off-white Naugahyde. 2 single seats, 1 bench seat, headliner, door and side panels, chrome box lid, window molding w/glass. $125 takes all. A.L. Trehearn, 4900 S. 44th St., Lincoln, Nebraska 68516, (402) 488-0278.

SELL — 1971-'72 Pinto fiberglass hood and trunk lid. Save lots of weight. Hood — $94; lid — $75; both for $160. Mickey Cohen, 340 Union Street, Luzerne, Pennsylvania 18709, (717) 288-5600 or 287-4409.

SELL — Enderle injector for 427 Chevy, complete with pump, shutoff and stainless Teflon lines, also clutch Turbo-Hydromatic trans with B&M cable shifter. All perfect. John Selleck, 115 E. Roosevelt, Appleton, Wisc. 54911, (414) 731-1759.

SELL — Hilborn 4-port injection w/fuel pump, drive, jets, line, timing cover and adapter — $275; super Mallory magneto w/tach drive — $150. All for 427 Chevy. Excellent condition. Kenneth Grether, 1747 Steel Corners Rd., Cuy. Falls, Ohio 44223.

SELL — Unused Chrysler parts: block, 12.5:1 TRW, PC moly, steel crank — $275; Crane 526-330 can and kit — $180; '65 Coronet, 4.11, 4-speed — $375. More. Bob Alexander, 439 Plymouth St., E. Bridgewater, Mass. 02333, (617) 378-2798.

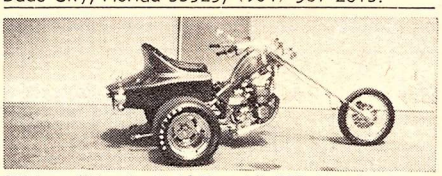
SELL — 273-c.-i. Chrysler eng. and trans; hi-riser, Holley, Hedders, lowered oil pan, Torque-Flite. Complete. Harold Groves, 2806 Nameoki Rd., Granite City, Illinois 62040, (618) 876-0475.

COMPETITION CARS

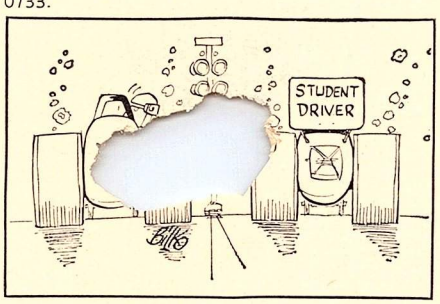
SELL — Radici & Wise 1971 Camaro Funny Car, Logghe chassis. Will send photos. Dave Wise, 5819 Hampton, St. Louis, Mo. 63109, (314) 832-0802.

ODD STUFF

SELL — 417 HOT ROD & CUSTOM Magazines, 1956-'63, trade for ½-to-1½-ton truck, any age. 25¢ for list. Frank Yager, P.O. Box 1202, Dade City, Florida 33525, (904) 567-2613.



SELL — "Honda Half-Breed," 750 Honda super-trike. Cover story Nov. "Street Chopper." 100% show & go. $5000 or offer. Dan Gerber, 17061 Whitby Cir., Tustin, California 92680, (714) 832-0733.



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LOOK FOR THE APRIL ISSUE
. . . on sale April 4

SELL — 1970 Nicky Nova SS 400, 4.56 gears, Hooker A... suspension, gauges, $3500... Corvette. Eric Ree... Ill., (217) 2... 1932 Ford str...

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